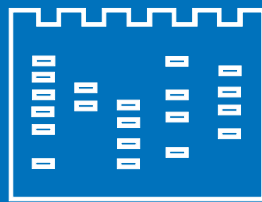


# SERVA

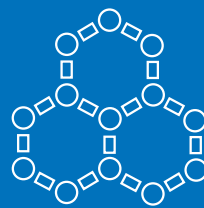
## Catalog 2022



■ Biochemicals



■ Electrophoresis

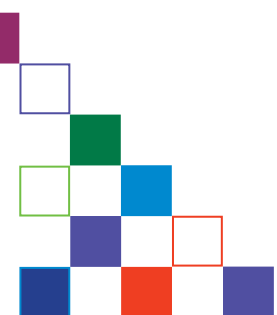


■ Life Science



■ Bioseparation

## Serving Scientists



## German Customers

### To place orders

Phone: 06221 13840-0  
Fax: 06221 13840-10  
Toll Free Phone: 0800 7378246  
Toll Free Fax: 0800 7378247

### Customer Care

Phone: 06221 13840-46  
Fax: 06221 13840-10

### Technical Service

Phone: 06221 13840-44  
Fax: 06221 13840-54  
E-Mail: [tech.service@serva.de](mailto:tech.service@serva.de)

## International Customers

### To place orders

Phone: +49 6221 13840-0  
Fax: +49 6221 13840-10  
Or contact your local distributor  
For more information please visit [www.serva.de](http://www.serva.de)

### Customer Care

Phone: +49 6221 13840-47  
Fax: +49 6221 13840-10

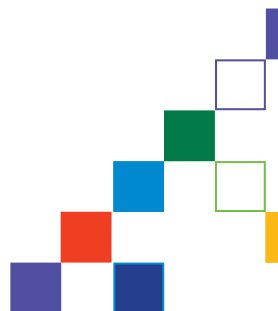
### Technical Service

Phone: +49 6221 13840-44  
Fax: +49 6221 13840-54  
E-Mail: [tech.service@serva.de](mailto:tech.service@serva.de)



# SERVA

SERVA Electrophoresis GmbH  
Carl-Benz-Str. 7 • D-69115 Heidelberg • Germany  
E-Mail: [info@serva.de](mailto:info@serva.de) • Internet: [www.serva.de](http://www.serva.de)



# Catalog 2022

## Our services

Benefit from SERVA's expertise in development and manufacturing, know-how and technical competence.

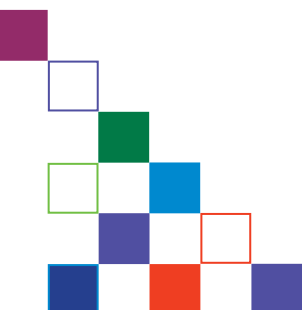
This is our platform of outstanding customer services – All you need to succeed:

- Educational: workshops, seminars, webinars
- Instrument qualification: IQ/OQ/PQ
- Sample-to-result development: customer specific gel electrophoresis applications
- Customized reagents: sourcing, larger pack sizes, production of buffers and solutions



## About us

SERVA products are present in your labs worldwide - the bench is our playground. The company's commitment „Serving Scientists“ is your invitation to the BlueWorld: explore our products, innovations and services. SERVA fulfills highest standards in quality management to deliver consistent product performance and continuity of supply. SERVA is ISO certified and committed to working safety and environmental protection.



□ **ABTS**

see 14364 2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)-2NH<sub>4</sub>-salt, page 14

■ **Acetic acid 100 % analytical grade**

(Glacial acetic acid)  
C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> ♦ M<sub>r</sub> 60.05 ♦ CAS [64-19-7]



**DANGER**  
H226-H314 ♦ GGVSE/ADR 8 II UN2789 ♦ IATA 8 II UN2789  
♦ EINECS 200-580-7 ♦ WGK 1 L ♦ HS 29152100

Solvent widely utilized for various oxidation reactions. Used in fixing solutions of polyacrylamide gels.

Assay (GC) min. 99.8 %  
Density (20 °C) 1.05

Cat.No.	Size
45633.01	1 L
45633.02	2,5 L

■ **Acetic acid 100 % for LC-MS**

(Glacial acetic acid)  
C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> ♦ M<sub>r</sub> 60.05 ♦ CAS [64-19-7]



**DANGER**  
H226-H314 ♦ EG-Index 607-002-00-6 ♦ GGVSE/  
ADR 8 II UN2789 ♦ IATA 8 II UN2789 ♦ EINECS 200-580-7

♦ HS 29152100

Additive for eluent phase for LC-MS.

Assay (GC) min. 99.95 %  
Refractive index (20 °C) 1.3711 - 1.3731  
Water (KF) ≤ 0.1 %  
Residue on evaporation ≤ 5 ppm

**Transmittance**

254 nm min. 30.0 %  
260 nm min. 80.0 %  
270 nm min. 95.0 %  
280 nm min. 97.0 %

**Metal Compounds**

Al max. 0.05 ppm  
Fe max. 0.2 ppm  
Na max. 0.5 ppm  
Ca/K/Mg max. 0.1 ppm

Cat.No.	Size
45638.01	50 ml

■ **Acetone research grade**

(2-Propanone; Dimethylketone)  
C<sub>3</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 58.08 ♦ CAS [67-64-1]



**DANGER**  
H225-H319-H336 ♦ EG-Index 606-001-00-8 ♦ GGVSE/  
ADR 3 II UN1090 ♦ IATA 3 II UN1090 ♦ EINECS 200-662-2 ♦  
WGK 1 L ♦ HS 29141100

Solvent used in protein precipitation and as fixative in histology.

Assay (GC) min. 99.0 %  
Density (20 °C) 0.790 - 0.793  
Water max. 0.30 %

Cat.No.	Size
45632.01	1 L

■ **Acetonitrile for HPLC**

C<sub>2</sub>H<sub>3</sub>N ♦ M<sub>r</sub> 41.05 ♦ CAS [75-05-8]



**DANGER**  
H225-H302-H312-H319-H332 ♦ MAK/TRK 20 ml/  
m<sup>3</sup>; 34 mg/m<sup>3</sup> ♦ EG-Index 608-001-00-3 ♦ GGVSE/  
ADR 3 II UN1648 ♦ IATA 3 II UN1648 ♦ EINECS 200-835-2 ♦ WGK 2L ♦  
HS 29269095

Special grade for use as a mobile phase component in chromatographic techniques.

Assay (GC) min. 99.9 %  
Density (20 °C) 0.782 - 0.783  
Boiling point 81.6 °C  
Refractive Index 1.3430 - 1.3450

**Maximum Impurity Levels:**

Water max. 0.005 %

**Minimum Transmission Levels**

1 cm cell compared against HPLC water  
240 nm min. 99.0 %  
254 nm min. 99.0 %

Cat.No.	Size
45605.01	2,5 L

■ **Acetonitrile for UHPLC-MS**

C<sub>2</sub>H<sub>3</sub>N ♦ M<sub>r</sub> 41.05 ♦ CAS [75-05-8]



**DANGER**  
H225-H302-H312-H319-H332 ♦ EG-Index 608-001-00-3  
♦ GGVSE/ADR 3 II UN1648 ♦ IATA 3 II UN1648 ♦  
EINECS 200-835-2 ♦ HS 29269070

Special grade for excellent performance in ultra high performance liquid chromatography-tandem mass spectrometry (UHPLC-MS/MS).

Assay (GC) min. 99.99 %  
Refractive index (20 °C) 1.342 - 1.346  
Acidity ≤ 0.0003 meq/g  
Alkalinity ≤ 0.0002 meq/g  
Water (KF) ≤ 100 ppm  
Residue on evaporation ≤ 1 ppm

**Transmittance**

191 nm min. 40.0 %  
195 nm min. 80.0 %  
200 nm min. 95.0 %  
215 nm min. 97.0 %  
≥ 230 nm min. 99.0 %

**Absorbance**

220 nm max. 0.01 AU  
254 nm max. 0.005 AU

**Fluorescence (quinine)**

365 nm max. 0.5 ppb  
450 nm max. 0.5 ppb

**UHPLC gradient peak**

210 nm max. 0.4 mAU  
Drift at 210 nm max. 6 mAU  
Drift at 254 nm max. 2 mAU

**Test LC-MS TIC (50 – 2000 m/z)**

**ES I(+)**  
Sensitive impurities (reserpine) max. 30 ppb

**Metal Compounds**

Na/K/Ca max. 50 ppb  
Al/Fe/Mg max. 20 ppb

Microfiltered, 0.1 µm

Cat.No.	Size
45634.02	2,5 L

□ **Acetyl-L-leucyl-L-leucyl-L-argininal**

see 51867 Leupeptin, page 67

### ■ Acetylthiocholine-iodide research grade

$C_7H_{16}N^+OS^-I^-$  ♦  $M_r$  289.2 ♦ CAS [1866-15-5]



DANGER

H301-H312 ♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦ EINECS 217-474-1 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Cholinesterase substrate (1). The liberated thiol group is estimated using 5,5'-dithiobis(2-nitrobenzoic acid) (2).

Assay (titr.) min. 98.0 %

#### References:

1. Ellman, G.L. et al. (1961) *Biochem. Pharmacol.* **7**, 88-95
2. Ellman, G. & Callaway, E. (1961) *Nature* **192**, 1216-7

Cat.No.	Size
10570.01	1 g
10570.02	5 g

### □ Achromycin-HCl

see 35866 Tetracycline-HCl, page 138

### □ Acid Blue 15

see 35053 SERVA Blue W, page 102

### □ Acid Blue 83

see 35053 SERVA Blue R, page 102

### □ Acid Blue 90

see 35050 SERVA Blue G, page 102

### □ Acid Red 112

see 33429 Ponceau S, page 85

### □ Acid Red 14

see 14410 Azorubin, page 14

### □ Acid Red 87

see 21005 Eosin Y·Na-salt, page 41

### □ Acid Violet 17

see 35072 SERVA Violet 17, page 115

### □ Acid Violet 19

see 34597 Fuchsin acid, page 47

### ■ Acrylamide 2X research grade

$C_3H_5NO$  ♦  $M_r$  71.1 ♦ CAS [79-06-1]



DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03mg/m<sup>3</sup> ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Standard quality, applicable to general electrophoretic separations.

Assay (HPLC) min. 98.0 %  
 A 290 nm max. 0.7 (5 %)  
 pH 5.0 - 8.0 (5 %)  
 Conductivity (µS/cm) max. 100 (40 %)  
 Acrylic acid (titr.) max. 0.03 %

Cat.No.	Size
10675.02	1 kg

### ■ Acrylamide 4X analytical grade

$C_3H_5NO$  ♦  $M_r$  71.1 ♦ CAS [79-06-1]



DANGER

H301-H312-H315-H317-H319-H332-H340

-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/

TRK 0,03 mg/m<sup>3</sup> ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Quality of analytical grade, applicable to all electrophoresis techniques.

Recrystallized. Polymerizing time: max. 30 min (3 mM TEMED / 3 mM APS, 15 % gel).

Assay (HPLC) min. 99.0 %  
 A 290 nm max. 0.6 (5 %)  
 pH 5.0 - 8.0 (5 %)  
 Conductivity (µS) max. 20 (40 %)  
 Content of free acrylic acid max. 0.002 %

Cat.No.	Size
10674.03	1 kg

### ■ Acrylamide 4X molecular biology grade

$C_3H_5NO$  ♦  $M_r$  71.1 ♦ CAS [79-06-1]



DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03mg/m<sup>3</sup> ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

DNase and RNase: non-detectable. Special quality for use in molecular biological applications as well as all electrophoresis techniques.

Assay (GC) min. 99.0 %  
 A 290 nm max. 0.6 (5 %)  
 pH 5.0 - 8.0 (5 %)  
 Conductivity (µS) max. 20 (40 %)  
 Content of free acrylic acid max. 0.002 %

Cat.No.	Size
10678.02	100 g

### ■ Acrylamide 4X Solution (40 % w/v)



DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426

♦ IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution contains 40 % (w/v) highly purified acrylamide in deionized water.

A 290 nm max. 0.6 (5 %)  
 pH 6.0 - 8.0 (5 %)  
 Conductivity (µS) max. 100  
 Content of free acrylic acid max. 0.03 %

Cat.No.	Size
10677.01	1 L

### ■ Acrylamide/Bis Solution, 19:1 (40 % w/v), 5 % C



DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)  
 pH 6.0 - 8.0 (5 %)  
 Conductivity (µS) < 100  
 Content of free acrylic acid < 0.03 %

Cat.No.	Size
10679.01	500 ml
10679.02	4 x 500 ml
10679.03	1 L

■ Acrylamide/Bis Solution, 29:1 (30 % w/v), 3.3 % C



DANGER  
H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦  
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦  
IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)  
pH 6.0 - 8.0 (5 %)  
Conductivity (µS) < 100  
Content of free acrylic acid < 0.03 %

Cat.No.	Size
10687.01	500 ml
10687.02	4 x 500 ml
10687.03	1 L

■ Acrylamide/Bis Solution, 29:1 (40 % w/v), 3.3 % C



DANGER  
H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦  
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦  
IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)  
pH 6.0 - 8.0 (5 %)  
Conductivity (µS) < 100  
Content of free acrylic acid < 0.03 %

Cat.No.	Size
10680.01	500 ml
10680.02	4 x 500 ml
10680.03	1 L

■ Acrylamide/Bis Solution, 37.5:1 (30 % w/v), 2.6 % C



DANGER  
H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦  
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦  
IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)  
pH 6.0 - 8.0 (5 %)  
Conductivity (µS) < 100  
Content of free acrylic acid < 0.03 %

Cat.No.	Size
10688.01	500 ml
10688.02	4 x 500 ml
10688.03	1 L

■ Acrylamide/Bis Solution, 37.5:1 (40 % w/v), 2.6 % C



DANGER  
H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦  
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦  
IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)  
pH 6.0 - 8.0 (5 %)  
Conductivity (µS) < 100  
Content of free acrylic acid < 0.03 %

Cat.No.	Size
10681.01	500 ml
10681.02	4 x 500 ml
10681.03	1 L

□ Actidione®

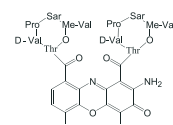
see 10700 Cycloheximide, page 32

□ Actinase E

see 33635 Pronase E from *Streptomyces griseus* min. 5 DMC-U/mg, page 86

■ Actinomycin D cryst. research grade

(Dactinomycin; Actinomycin C<sub>1</sub>)  
C<sub>62</sub>H<sub>86</sub>N<sub>12</sub>O<sub>16</sub> ♦ M<sub>r</sub> 1255.5 ♦ CAS [50-76-0]



DANGER  
H300 ♦ GGVSE/ADR 6.1 II UN2811 ♦  
IATA 6.1 II UN2811 ♦ EINECS 200-063-6 ♦

WGK 3L ♦ HS 29419000  
Storage temperature +2 °C to +8 °C

Chromopeptide with antibiotic activity. Contains 2 cyclic peptides bound to the chromophoric phenoxazone ring. Binds specifically to the minor groove of the DNA double helix, and thus prevents it from being a template for RNA synthesis. Antineoplastic agent which inhibits the growth of rapidly dividing cells. Induces apoptosis in cancer cells. Used as a selective agent in cell culture.

References:

1. Meienhofer, B. & Atherton, E. (1977) Adv. Appl. Microbiol. **16**, 203
2. Kleef, J. et al. (2000) Int. J. Cancer **86**, 399-407
3. Narita, Y. et al. (2000) Cancer Chemother. Pharmacol. **45**, 149-56

Cat.No.	Size
10710.01	5 mg

□ Activated Charcoal

see 30890 Norit® A, page 78

■ Adapter Set (2 x 2)

HS 90272000

Cat.No.	Size
AS-01	1 kit

■ Adenine analytical grade

(6-Aminopurine)  
C<sub>5</sub>H<sub>5</sub>N<sub>5</sub> ♦ M<sub>r</sub> 135.1 ♦ CAS [73-24-5]



DANGER  
H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦  
IATA 6.1 III UN2811 ♦ EINECS 200-796-1 ♦ WGK 1 ♦ HS 29335995

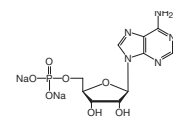
Synthetic, therefore free of any contamination with related natural products. It is used as media component in cell culture of mammalian cells, yeast and plants.

Assay (titr.) 98.0 - 102.0 %

Cat.No.	Size
10739.02	25 g

■ Adenosine-5'-phosphate-Na<sub>2</sub>-salt analytical grade

(AMP)  
C<sub>10</sub>H<sub>12</sub>N<sub>5</sub>O<sub>7</sub>P·Na<sub>2</sub>·7H<sub>2</sub>O ♦ M<sub>r</sub> 517.2 ♦ CAS [4578-31-8]



EINECS 224-961-2 ♦ WGK 1 ♦ HS 29389090  
Storage temperature +2 °C to +8 °C

Adenosine 5'-monophosphate (5'-AMP) is a substrate of enzymes such as AMP deaminase or 5'-nucleotidase and an activator of AMP-activated protein kinases.

Assay (HPLC) min. 95.0 %  
Water (KF) max. 26.0 %

Cat.No.	Size
10883.01	5 g

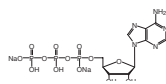
### ■ Adenosine-5'-triphosphate- $\text{Na}_2$ -salt cryst. research grade

(ATP)

 $\text{C}_{10}\text{H}_{14}\text{N}_5\text{O}_{13}\text{P}_3\text{Na}_2$  ♦ M, 551.1 ♦ CAS [987-65-5]

EINECS 213-579-1 ♦ WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C



Adenosine 5'-triphosphate (ATP) is a substrate of many kinases involved in cell signaling and of adenylate cyclases. ATP provides the metabolic energy to drive metabolic pumps. It serves as a coenzyme in a wide array of enzymatic reactions and is used for tissue preparation

Assay (HPLC) min. 98.0 %  
Water (KF) max. 8.0 %

Cat.No.	Size
10920.02	5 g
10920.03	25 g

### □ Adogen 464

see 37076 Trioctylmethylammonium chloride, page 140

### ■ AEBSF-HCl research grade

(4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride)

 $\text{C}_8\text{H}_{10}\text{FNO}_2\text{S}\cdot\text{HCl}$  ♦ M, 239.7 ♦ CAS [30827-99-7]

WGK 1 ♦ HS 29214900

Storage temperature +2 °C to +8 °C

Irreversible inhibitor of thrombin and other serine proteases (e.g. chymotrypsin, kallikrein, plasmin, proteinase K, trypsin). Inhibits by acylation of the active site of the enzyme. AEBSF is water-soluble and much less toxic than PMSF and DFP. Aqueous solutions are stable between pH 5 - 6; limited stability above pH 7.5.

Assay (HPLC) min. 98.0 %

#### References:

1. Walsmann, P. et al. (1972) Acta biol. med. germ. **28**, 577-585
2. Marwardt, F. et al. (1973) Thrombosis Res. **2**, 343-348
3. Taylor, J.A. et al. (1995) Immunology **86**, 629-635

Cat.No.	Size
12745.03	1 g

### □ Aerosporin

see 47976 Polymyxin-B-sulfate, page 84

### ■ Agar Agar SERVA powder analytical grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Highly purified. Suitable for immunodiffusion.

Gel strength (g/cm<sup>2</sup>, 1.5 % gel) min. 600  
Point of solidification 39 - 43 °C  
Loss on drying max. 10.0 %  
Ash max. 4.0 %  
pH (1,5%) in water (60 °C) 6.5 - 7.5

Cat.No.	Size
11393.03	250 g
11393.04	1 kg

### ■ Agar Agar SERVA High Gel-Strength powder research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for *in vitro* culture of plants or bacteriology, no turbidity with phosphates.

Gel strength (g/cm<sup>2</sup>, 1.5 % gel) min. 700  
Point of solidification 34 - 38 °C  
Loss on drying max. 10.0 %  
Ash max. 4 %  
pH 1.5 % in water (60 °C) 6.0 - 8.0

Cat.No.	Size
11396.02	250 g
11396.03	1 kg
11396.04	5 kg

### ■ Agar Agar SERVA Kobe I in stripes, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Threadlike, bleached; tested for use in nutrient media.

Gel strength (g/cm<sup>2</sup>, 1.5 % gel) > 400  
Point of solidification 30 - 40 °C  
Loss on drying max. 25.0 %  
Ash max. 6.5 %  
pH 1.5 % in water (60 °C) 5.0 - 8.0

Cat.No.	Size
11395.03	1 kg
11395.04	5 kg

### ■ Agar Agar SERVA Kobe I powder, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for bacteriology.

Gel strength (g/cm<sup>2</sup>, 1.5 % gel) min. 800  
Point of solidification 35 - 42 °C  
Loss on drying max. 22.0 %  
Ash max. 1.5 %  
pH 1.5 % in water (60 °C) 5.0 - 8.0

Cat.No.	Size
11392.03	1 kg
11392.04	5 kg

### □ Agar Substitute

see 22168 Gelrite®, page 49

### ■ Agarose SERVA 3:1 molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

Unique mixture of agarose formulated for high resolution of small (10 bp - 1000 bp) DNA, RNA and PCR fragments. High purity for low background even at high gel concentrations (up to 6 % in 1x TAE buffer). Optimized gel strength for easy-to-handle gels. Special quality tested for applications in molecular biology. Manufactured using an innovative organic solvent-free manufacturing process.

Gelling temperature (1.5 %) max. 36 °C  
Gel strength (1.5 %) min. 650 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.1

Cat.No.	Size
11385.01	25 g
11385.02	100 g

### ■ Agarose SERVA research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Agarose with low EEO for analytical and preparative gel electrophoresis and blotting of DNA/RNA fragments > 500 bp.

Gelling temperature (1.5 %) 34 - 38 °C  
Gel strength (1.5 %) > 1100 g/cm<sup>2</sup>  
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size
11380.02	100 g
11380.03	250 g
11380.05	500 g



■ **Agarose SERVA Wide Range** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

For analytical and preparative electrophoresis and blotting of DNA/RNA fragments between 250 and 23,000 bp, PCR products, preparation of plasmids, screening and cleaning. Tested for applications in molecular biology.

Gelling temperature (1.5 %) 34 - 39 °C  
Gel strength (1.5 %) min. 1200 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.13

Cat.No.	Size
11406.01	250 g
11406.02	500 g
11406.03	1 kg

■ **Agarose SERVA for DNA Electrophoresis** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of DNA fragments between 1000 and 20,000 bp. Each lot is tested for the absence of *EcoRI* inhibition.

Gelling temperature (1.5 %) 34 - 39 °C  
Gel strength (1.5 %) min. 1700 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.13

Cat.No.	Size
11404.03	100 g
11404.04	250 g
11404.07	500 g
11404.05	1 kg

■ **Agarose SERVA Low Melting** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative nucleic acid electrophoresis of DNA/RNA fragments > 500 bp. Highly efficient recovery of DNA fragments at low temperature for subsequent in-gel manipulations like restriction analysis or ligation reactions.

Gelling temperature (1.5 %) max. 31 °C  
Gel strength (1.5 %) > 200 g/cm<sup>2</sup>  
Electro endosmosis (EEO) 0.05 - 0.14

Cat.No.	Size
11408.01	5 g
11408.02	25 g

■ **Agarose SERVA Premium** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative gel electrophoresis of DNA/RNA fragments > 500 bp, recovery of DNA fragments for further modifications (restriction analysis, ligation reactions), blotting of nucleic acids. Special quality tested for applications in molecular biology.

Gelling temperature (1.5 %) 34 - 38 °C  
Gel strength (1.5 %) > 1100 g/cm<sup>2</sup>  
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size
11381.02	100 g
11381.03	250 g

■ **Agarose SERVA Premium Low Melting**

molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For efficient separation of DNA/RNA fragments > 500 bp, best for in-gel enzymatic processing like restriction analysis, ligation reactions, PCR and others. Ideal for digestion by agarase enzymes, making it very easy to recover or to analyse large DNA fragments by cloning or other enzymatic applications. Special tested quality for applications in molecular biology.

Gelling temperature (1.5 %) 24 - 28 °C  
Gel strength (1.5 %) > 500 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size
11382.01	25 g
11382.02	100 g

■ **Agarose SERVA for PCR** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp; special quality tested for applications in molecular biology. High gel strength for better handling and enhanced visibility due to improved clarity of the gel.

Gelling temperature (1.5 %) 28 - 34 °C  
Gel strength (1.5 %) > 600 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size
11383.02	100 g

■ **Agarose SERVA for PCR Low Melting** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp. Special quality tested for applications in molecular biology. Best for fine resolution at agarose concentrations ranging from 1.8 % up to 4.5 %. Best for in-gel enzymatic processing. Ideal for digestion by agarase enzymes. Easy to recover small DNA fragments for subsequent analysis or for enzymatic modifications.

Gelling temperature (1.5 %) ca. 26 °C  
Gel strength (1.5 %) > 200 g/cm<sup>2</sup>  
Electro endosmosis (EEO) ≤ 0.10

Cat.No.	Size
11384.01	25 g
11384.02	100 g

■ **Agarose SERVA High EEO**

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Special preparation for immunoelectrophoresis (esp. precipitation) with relatively high electroendosmosis and low gelling point.

Gelling temperature (1.5 %) 34 - 39 °C  
Gel strength (1.5 %) > 1300 g/cm<sup>2</sup>  
Electro endosmosis (EEO) 0.23 - 0.27

Cat.No.	Size
11397.04	250 g

■ **Agarose SERVA Neutral for IEF**

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Premium grade for isoelectric focusing. Chemically treated agarose to neutralize residual negative charge sites, virtually eliminating electroendosmosis.

Gel strength (1.5 %) > 800 g/cm<sup>2</sup>  
Electro endosmosis (EEO) 0

Cat.No.	Size
11402.02	5 g



■ **Agarose SERVA Tablets, 0.5 g/Tablet** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

Agarose pressed into tablets of 0.5 g each. For analytical and preparative electrophoresis of DNA fragments between 200 and 20,000 bp. Special quality tested for applications in molecular biology. There is no need to weigh the agarose. Just simply disperse the requested number of tablets in running buffer for 5 minutes at room temperature and then heat the suspension in a microwave until the material is dissolved. The achieved gel volume per tablet for different agarose concentrations is listed below:

% agarose	gel volume/tablet
0.5 %	100.0 ml
0.75 %	66.7 ml
1.0 %	50.0 ml
1.5 %	33.3 ml
2.0 %	25.0 ml
Gel. temp. (1.5 %)	34 - 39 °C
Gel strength (1.5 %)	> 1000 g/cm <sup>2</sup>
Electro endosmosis (EEO)	≤ 0.13

Cat.No.	Size
11405.01	100 g

■ **Albumin Bovine** cryst. lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

The purest form of our bovine albumins. Manufacturing includes a proprietary heat-shock fractionation process, ion exchange treatment and triple sequential crystallization, resulting in an extremely pure product. Best suited for use in highly sensitive systems requiring consistent protein background and as standard for protein quantification and molecular weight determination. As well used as hapten carrier for antibody production, as stabilizer of enzymes and other sensitive biopolymers and in diverse molecular biology applications. Crystal form simplifies handling and weighing.

Assay (CAF)	min. 99.0 %
pH (7 % in H <sub>2</sub> O)	5.0 - 5.4
Moisture (KF)	max. 5.0 %

Cat.No.	Size
11920.02	1 g
11920.04	10 g
11920.06	50 g

■ **Albumin Bovine Fraction V, pH 7.0** standard grade, lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. Standard quality for many applications: protein standard, growth promoter in serum-free media for the cultivation of animal cells, supplement in microbiological nutrient media, diluent/stabilizer in diagnostic systems and of isolated enzymes, peptides or antibodies as well as blocking agent to prevent non-specific absorption in immunoassays like Western Blots, ELISA systems.

Assay (CAF)	min. 98.0 %
pH (7 % in H <sub>2</sub> O)	6.8 - 7.2
Moisture (KF)	max. 5 %
Iron (µg/g, AA)	max. 15
IgG	not detectable

Cat.No.	Size
11930.01	10 g
11930.02	25 g
11930.03	100 g
11930.04	500 g

■ **Albumin Bovine Fraction V, pH 5.2** standard grade, lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured in a similar way as cat. no. 11930 but with adjustment to pH 5.2 prior to lyophilization. Special quality for serology, antibody enhancement, bacterial and animal culture media.

Assay (CAF)	min. 98.0 %
pH (7 % in H <sub>2</sub> O)	5.2 - 5.6
Moisture (KF)	max. 5.0 %

Cat.No.	Size
11922.02	25 g
11922.03	100 g

■ **Albumin Bovine Fraction V** receptor grade, lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock fractionation with additional solvent treatment. Contains extremely low levels of heavy metals, alkaline earths, fatty acids, and low molecular weight impurities. First choice for diagnostic systems. Best suited as well for *in vitro* transport and binding studies, in perfusion media for analysis of hormone effects, as hapten carrier for antibody production, stabilizer for enzymes, peptides and antibodies and standard for protein quantification and molecular weight determination.

Assay (CAF)	min. 98.0 %
pH (7 % in H <sub>2</sub> O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
Total lipids (mg/g)	max. 3.5
Fatty acids (mg/g)	max. 1
Iron (µg/g, AA)	max. 5
Heavy metals (µg/g, AA)	max. 20
Calcium (mg/g, AA)	max. 0.5
IgG	not detectable

Cat.No.	Size
11924.02	25 g
11924.03	100 g
11924.04	500 g

■ **Albumin Bovine Fraction V, Protease-Free** lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process; double heated to insure inactivation of proteolytic activity. Excellent for protease sensitive immunoassays, for stabilisation of proteins and enzymes in buffers and before lyophilization. Stabilizer for long-term storage of highly diluted antibodies. Blocking agent to prevent non-specific binding of proteins in immunoassays like Western Blots, ELISA systems.

Assay (CAF)	min. 98.0 %
Protease (Casein hydrolysis)	not detectable
pH (7 % in H <sub>2</sub> O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
IgG	not detectable

Cat.No.	Size
11926.01	5 g
11926.02	25 g
11926.03	100 g
11926.04	500 g

■ **Albumin bovine Fraction V, Protease-free, low IgG** lyophil.

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature +2 °C to +8 °C

Specially suitable BSA for protease-sensitive immunoassays and to stabilise peptides, proteins and enzymes in buffer solutions and prior to freeze-drying and highly diluted antibody solutions for long-term storage. Because of the low IgG content this BSA is recommended for blocking of non-specific adsorption of proteins in immunoassays such as Western blots, ELISA. Produced by a proprietary Heat-Shock method, designed to prevent the excessive use of denaturing organic solvents. EU origin.

Total protein > 92 %  
 Albumin purity ≥97 %  
 Protease not detected  
 IgG (ng/mg) < 100  
 pH (10 % in H<sub>2</sub>O) 6.5 - 7.4  
 Moisture (LOD) max. 5.0 %

Cat.No.	Size
11948.01	25 g
11948.02	100 g
11948.03	500 g

■ **Albumin Bovine Fraction V, Fatty Acid-Free** lyophil.

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock/solvent fractionation process. Suitable for *in vitro* binding and transport studies and in diagnostic systems.

Assay (CAF) min. 98.0 %  
 pH (7 % in H<sub>2</sub>O) 6.8 - 7.2  
 Total lipids (mg/g) max. 2  
 Fatty acids (mg/g) max. 0.2  
 Moisture (KF) max. 5.0 %

Cat.No.	Size
11932.02	25 g
11932.03	100 g

■ **Albumin Bovine Fraction V, Protease and Fatty Acid-Free** diagnostic grade, lyophil.

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature +2 °C to +8 °C

Highly purified albumin, especially designed for protease-sensitive immunoassays, such as RIA and EIA. Suitable as protein standard, diluent, enzyme stabilizer. Can be used also in hybridization and nucleic acid based assays as well as in fatty acid sensitive cell culture systems.

Assay (CAF) min. 98.0 %  
 pH (10 % in H<sub>2</sub>O) 6.5 - 7.5  
 Protease max. 0.005 U/mg  
 Fatty acids max. 0.01%  
 IgG not detected

Cat.No.	Size
11945.01	10 g
11945.02	25 g
11945.03	100 g
11945.04	500 g

■ **Albumin Bovine Fraction V, pH 7.0** Life Science grade, lyophil.

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature +2 °C to +8 °C

Highly purified albumin ideal for use in biotechnology, cell culture, diagnostics, research and other Life Science applications. First isolated by a proprietary heat shock/organic solvent process and further purified by non-solvent based methodologies to reduce IgG and endotoxins to very low levels.

Contains > 90 % monomeric albumin that retains many of the binding, transfer and physical properties of native albumin.

Purity (CAF) ≥ 98.0 %  
 pH (1 % in 0.15 NaCl) 6.8 - 7.2  
 Moisture (Lod) ≤ 5.0 %  
 Heavy metals ≤ 20 ppm  
 IgG ≤ 50 µg/g  
 Mycoplasma none detected  
 Viral agents none detected

Cat.No.	Size
11946.02	100 g

■ **Albumin Bovine Fraction V, pH 7.0**

microbiological grade, lyophil.

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as albumin stabilizer. The product is furthermore solvent-treated and thoroughly diafiltered. Specially developed for the growth of *leptospira*, *treponemas* and other fastidious microorganisms such as mycobacteria, trypanosomes, other protozoans etc.

Assay (CAF) min. 98.0 %  
 pH (7 % in H<sub>2</sub>O) 6.8 - 7.2

Cat.No.	Size
11934.02	100 g

■ **Albumin Bovine** cell culture grade

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature -15 °C to -25 °C

Cohn Analog. Specially purified albumin with an almost native composition of lipids, fatty acids and other cofactors which are important for cell culture. Suitable as cell growth supplement.

Purity (CAF) min. 96.0 %  
 pH (10 % in H<sub>2</sub>O) 6.5 - 7.5  
 Endotoxins max. 3 EU/mg

*Cohn Analog = registered trademark of Proliant Biologicals, USA.*

Cat.No.	Size
47330.01	10 g
47330.03	100 g

■ **Albumin Bovine Low Endotoxin** biotechnology grade

(BSA)  
 M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]  
 EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020  
 Storage temperature -15 °C to -25 °C

Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9 CFR 113. Suitable as growth promoter in serum-free media for the cultivation of animal cells and as supplement in microbiological media.

Assay (CAF) min. 97.0 %  
 pH (7 % in H<sub>2</sub>O) 5.0 - 6.0  
 Moisture (KF) 0 - 8.0 %  
 Endotoxin (LAL) max. 10 EU/mg  
 IgG not detectable

Cat.No.	Size
47321.01	25 g

### ■ Albumin Bovine Modified Cohn Fraction V, pH 7.0 lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a modification of the Cohn procedure, including a proprietary heat-shock method and further purification steps by extensive membrane dialysis and filtration. Suitable as protein standard, in ELISA and blotting techniques, as diluent/stabilizer in diagnostic systems and in serology and as stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF)	min. 98.0 %
pH (10 % in H <sub>2</sub> O)	6.5 - 7.5
Protease	max. 0.005 U/mg

Cat.No.	Size
11943.01	25 g
11943.02	100 g
11943.03	500 g

### ■ Albumin Bovine Fraction V, Very Low Endotoxin lyophil.

(BSA)

M<sub>r</sub> ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9 CFR 113.

Especially designed as nutrient in serum-free cell culture media. Suitable in perfusion media for hormone response studies and as hapten carrier for antibody production.

Assay (CAF)	min. 98.0 %
pH (7 % in H <sub>2</sub> O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
Endotoxin (LAL)	max. 2 EU/mg

Cat.No.	Size
47324.03	25 g

### ■ Albumin Bovine, 30 % Solution, Polymer Enhanced

(BSA)

M<sub>r</sub> ca. 67 000

WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Higher avidity exclusively controlled through pure albumin polymerisation. Does not contain artificial avidity enhancers or high molecular weight agglutination potentiators (e.g. PVP, gum acacia, or dextran). Does not contain caprylic acid or other stabilizers. IgG not detectable. Suitable as diluent/stabilizer in various RIA and EIA test systems, for various serological reagents, and for cross-matching procedures and antibody screening or titration.

Protein (Biuret)	29 - 31 g/dL
pH	7.2 - 7.4
NaCl (coulometric titrator)	0.6 - 0.7 g/dL
Preservative (sodium azide)	≤ 0.1 g/dL

Cat.No.	Size
11937.02	100 ml

### ■ Albumin egg (ovalbumin) lyophil.

M<sub>r</sub> ca. 45 000

HS 35021110

Storage temperature -15 °C to -25 °C

Purity (SDS PAGE)	min. 90 %
Loss on drying	max. 6.0 %

Cat.No.	Size
11842.01	1 g
11842.02	5 g

### ■ Albumin Human lyophil.

(HSA, Human serum albumin)

M<sub>r</sub> ca. 67 000 ♦ CAS [70024-90-7]

HS 35029020

Storage temperature +2 °C to +8 °C

Suitable as cell culture supplement that functions as a carrier protein for fatty acids, growth factors, trace minerals and protects cells from damage both physically and by binding toxins. Diluent/stabilizer for antisera, enzymes, and sensitive biopolymers in order to maintain particular properties.

Each lot is tested and found to be negative for antibodies to HIV-1, HIV-2, HCV, HTLV-1, HTLV-2 and HBsAg, for syphilitic serology and for HIV-1 and HCV RNA.

Total protein	> 92.0 %
HSA purity	> 97.0 %
pH (10 % in H <sub>2</sub> O)	6.5 - 7.4

Cat.No.	Size
11877.01	1 g
11877.02	5 g

### ■ Alcian Blue 8 GS

(Alcian Blue 8GX)

C.I.74240 ♦ M<sub>r</sub> 1928.86 ♦ CAS [75881-23-1]

EINECS 278-333-8 ♦ WGK 2L ♦ HS 32041900

Copper phthalocyanine dye. Stain for glycoproteins in electron microscopy (1). In electrophoresis (2, 3). For determination of glycosaminoglycans (4, 5).

λ max.	610 - 625 nm
A 1 cm/0.001 % in water/λmax.	min. 0.14

#### References:

1. Mowry, R.W. (1956) J. Histochem. Cytochem. **4**, 407
2. Wardi, A.H. & Allen, W.S. (1972) Anal. Biochem. **48**, 621-3
3. Wardi, A.H. & Michos, G.A. (1972) Anal. Biochem. **49**, 607-9
4. O'Brien, J.F. & Emmerling, M.E. (1978) Anal. Biochem. **85**, 377-86
5. Kanwar, Y.S. & Farquhar, M.G. (1979) Proc. Natl. Acad. Sci. USA **76**, 4493-7

Cat.No.	Size
12021.01	10 g

### □ Aliquat® 336

see 37076 Trioctylmethylammonium chloride, page 140

### ■ Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/μl) solution

(Orthophosphoric-monoester phosphohydrolase (alkaline optimum))

EC 3.1.3.1. ♦ M<sub>r</sub> ca. 140 000

DANGER

H334 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Especially suitable for the preparation of EIA-conjugates. Further dialysis is unnecessary (1). In 50 % glycerol, containing 5 mM Tris, 5 mM MgCl<sub>2</sub>, 0.1 mM ZnCl<sub>2</sub>, pH ca. 7.0.

**Unit definition:** 1 U catalyzes the hydrolysis of 1 μmole of 4-nitrophenyl phosphate per minute at 37 °C, pH 9.8 (DEA buffer) (6).

**Activity in other units:** ca. 1100 U/mg at 25 °C, pH 9.6 (glycine buffer)

#### Substrates for Alkaline Phosphatase:

- 4-Nitrophenyl phosphate-Na<sub>2</sub>-salt (cat.no. 30770)
- 5-Bromo-4-chloro-3-indoxyl-phosphate-p-toluidine-salt (BCIP) (cat.no. 15247)
- Naphthol-AS-BI-phosphate (cat.no. 29988)
- Naphthol-AS-MX-phosphate (cat.no. 30002)
- 1-Naphthyl phosphate-Na-salt (cat.no. 30130)

#### References:

1. Chaconas, G. & van de Sande, J.H. (1980) Methods Enzymol. **65**, 75-85
2. Maxam, A.H. & Gilbert, W. (1980) Methods Enzymol. **65**, 499-560
3. Williams, D.G. (1984) J. Immunol. Methods **72**, 261-8
4. Harlow & Lane (1988) Antibodies, Cold Spring Harbor Laboratory Press, p. 349
5. Garen, A. & Levinthal, C. (1960) Biochim. Biophys. Acta **38**, 470-83
6. Mössner, E. et al. (1980) Hoppe-Seyler's Z. Physiol. Chem. **361**, 543-9

Cat.No.	Size
32471.01	1 mg
32471.02	5 mg

**Alu-Gel-S** suspension research grade sterile

(Aluminum hydroxide C<sub>γ</sub>)  
HS 28183000

Ph. Eur. 1.3 % in water. Pyrogen free (as assayed in the supernatant), aged, salt-free.

Aluminum content 5.9 - 7.1 mg/ml  
Iron max. 15 ppm

Cat.No.	Size
12261.01	50 ml
12261.02	10 x 50 ml

**Aluminium silicate**

see 14515 Bentonite-SF, page 15

**Amidosulfobetaine-14**

see 20757 ASB-14, page 13

**2-Amino-2-(hydroxymethyl)-1,3-propanediol**

see 37180 Tris(hydroxymethyl)aminomethane, page 141

**2-Amino-2-(hydroxymethyl)-1,3-propanediol**

see 37181 Tris(hydroxymethyl)aminomethane, page 141

**5-Amino-2,3-dihydro-1,4-phthalazinedione**

see 28085 Luminol, page 68

**L-2-Amino-3-(indolylepropionic acid)**

see 37422 L-Tryptophan, page 143

**6-Amino-n-hexanoic acid**

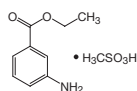
see 12548 ε-Aminocaproic acid, page 10

**3-Aminobenzoic acid ethyl ester·methanesulfonate pure**

(Tricaine; MS 222)  
C<sub>9</sub>H<sub>11</sub>NO<sub>2</sub>·CH<sub>3</sub>SO<sub>3</sub> ♦ M<sub>r</sub> 261.3 ♦ CAS [886-86-2]



WARNING  
H315-H319-H335 ♦ EINECS 212-956-8 ♦ WGK 1  
♦ HS 29163100



For anesthetization of fish and other cold-blooded animals.

Assay (HPLC) min. 99.0 %  
MP 147 - 152 °C

**References:**

1. Späth, M. & Schweickert, W. (1977) Arch. Pharmacol. **297**, 9-16

Cat.No.	Size
12396.02	5 g
12396.03	25 g

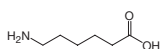
**D(-)-α-aminobenzylpenicillin**

see 13398 Ampicillin-Na-salt, page 11

**ε-Aminocaproic acid** analytical grade

(6-Amino-n-hexanoic acid)  
C<sub>6</sub>H<sub>13</sub>NO<sub>2</sub> ♦ M<sub>r</sub> 131.2 ♦ CAS [60-32-2]

EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000



Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

**References:**

1. Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11  
2. Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3

Cat.No.	Size
12548.03	100 g

**4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride**

see 12745 AEBSF-HCl, page 5

**4-(2-Aminoethyl)benzenesulfonyl fluoride-HCl**

see 31682 PEFABLOC® SC, page 80

**Aminoglutaramic acid**

see 22942 L-Glutamine, page 51

**Aminoglutaramic acid**

see 47204 L-Glutamine, page 51

**L-2-Aminoglutaric acid**

see 23000 L-Glutamic acid, page 51

**6-[D-α-aminophenylacetamido]penicillanic acid**

see 13398 Ampicillin-Na-salt, page 11

**3-Aminophthalhydrazine**

see 28085 Luminol, page 68

**Ammonium acetate** molecular biology grade

C<sub>2</sub>H<sub>7</sub>NO<sub>2</sub> ♦ M<sub>r</sub> 77.08 ♦ CAS [631-61-8]

EINECS 211-162-9 ♦ WGK 1L ♦ HS 29152900

Ammonium acetate can be used instead of sodium acetate for precipitation of nucleic acids. In general, for precipitation of DNA a 7.5 M stock solution and for RNA a 3 M stock solution are used. DNase/RNase not detected.

Assay (titr.) min. 97.0 %

Cat.No.	Size
39750.01	500 g

**Ammonium acetate solution, 7.5 M** molecular biology grade

C<sub>2</sub>H<sub>7</sub>NO<sub>2</sub> ♦ CAS [631-61-8]

HS 38220000

7.5 M stock solution (ammonium acetate, cat. no. 39750: 578.1 g/l) for precipitation of DNA. Short oligonucleotides and free dNTPs do not coprecipitate with DNA when precipitated with NH<sub>4</sub>OAc. Two consecutive precipitation steps are enough to remove 99 % of free dNTPs. DNase/RNase not detected.

**References:**

1. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), S. 15.3.1-4.  
2. Saporito-Irwin, S.M. et al., (1997) BioTechniques, **23** p. 424-427

Cat.No.	Size
39751.01	250 ml
39751.02	1 L

**Ammonium chloride** molecular biology grade

NH<sub>4</sub>Cl ♦ M<sub>r</sub> 53.5 ♦ CAS [12125-02-9]



WARNING  
H302-H319 ♦ EG-Index 017-014-00-8 ♦ EINECS 235-186-4 ♦ WGK 1L ♦ HS 28271000

DNase/RNase not detected.

Assay (titr.) min. 99.5 %  
Heavy metals (Pb) max. 0.0005 %  
Iron (Fe) max. 0.0002 %  
Sulfate (SO<sub>4</sub>) max. 0.002 %  
Phosphate (PO<sub>4</sub>) max. 0.0002 %

Cat.No.	Size
39752.01	500 g

**Ammonium formate for LC-MS**

(Formic acid ammonium salt)  
HCOONH<sub>4</sub> ♦ Mr 63.06 ♦ CAS [540-69-2]



**WARNING**  
H315-H319-H335 ♦ EINECS 208-753-9 ♦ WGK 1 ♦ HS 29151200

Additive for eluent phase for LC-MS.

Assay min. 98 %  
Impurities max. 50 ppm  
pH 5.5 – 7.6  
Water max. 0.5 %

**Gradient Peak**  
254 nm max. 0.001 AU  
Drift at 254 nm max. 0.005 AU

**Transmittance**  
260 nm min. 97 %

**Metal Compounds**  
Al max. 1 ppm  
Mg max. 1 ppm  
Fe max. 3 ppm  
Ca/K/Na max. 5 ppm

Microfiltered, 0.1 µm

Cat.No.	Size
45639.01	50 g

**Ammonium persulfate analytical grade**

(APS; Ammonium peroxodisulfate)  
(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> ♦ Mr 228.2 ♦ CAS [7727-54-0]



**DANGER**  
H272-H302-H315-H317-H319-H334-H335 ♦ EG-Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444  
♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

For use in electrophoresis. Polymerisation catalyst. Oxidizing agent of copper, for separation of manganese and chrome.

Assay (titr.) min. 99.0 %

Cat.No.	Size
13375.01	50 g
13375.05	250 g

**Ammonium persulfate electrophoresis grade**

(APS; Ammonium peroxodisulfate)  
(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> ♦ Mr 228.2 ♦ CAS [7727-54-0]



**DANGER**  
H272-H302-H315-H317-H319-H334-H335 ♦ EG-Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444  
♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

Polymerisation catalyst for acrylamide/bisacrylamide polymerisation. Application proved for standard and high resolution electrophoresis techniques.

Assay (titr.) min. 99.0 %  
pH 5 % in water 3.2 - 3.9

Cat.No.	Size
13376.01	50 g
13376.02	250 g

**Ammonium sulfate molecular biology grade**

(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> ♦ Mr 132.2 ♦ CAS [7783-20-2]  
EINECS 231-984-1 ♦ WGK 1 ♦ HS 28332980

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size
39753.02	1 kg

**Ammonium sulfate analytical grade**

(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> ♦ Mr 132.2 ♦ CAS [7783-20-2]  
EINECS 231-984-1 ♦ WGK 1L ♦ HS 28332980

Suitable for enzymology.

Assay (titr.) min. 99.0 %

**References:**

1. Wood, W.I. (1976) Anal. Biochem. **73**, 250-7

Cat.No.	Size
13378.01	1 kg

**AMP**

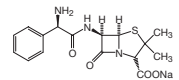
see 10883 Adenosine-5'-phosphate-Na<sub>2</sub>-salt, page 4

**Ampholytes**

see 42902 SERVALYT™ 2-4, page 121

**Ampicillin-Na-salt molecular biology grade, Ph. Eur.**

(6-[D-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)  
C<sub>16</sub>H<sub>18</sub>N<sub>3</sub>O<sub>4</sub>S·Na ♦ Mr 371.4 ♦ CAS [69-52-3]



**DANGER**  
H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000  
Storage temperature +2 °C to +8 °C

Semi-synthetic derivative of penicillin. Used in molecular biology for the selection of resistant bacteria. Solubility in water: 1 part in 2 parts H<sub>2</sub>O. Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

**References:**

1. Davies, J. & Smith, D.J. (1978) Ann. Rev. Microbiol. **32**, 469

Cat.No.	Size
13399.01	10 g
13399.02	25 g

**Ampicillin-Na-salt research grade, Ph. Eur.**

(6-[D-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)  
C<sub>16</sub>H<sub>18</sub>N<sub>3</sub>O<sub>4</sub>S·Na ♦ Mr 371.4 ♦ CAS [69-52-3]



**DANGER**  
H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000  
Storage temperature +2 °C to +8 °C

Semi-synthetic derivative of penicillin.

Solubility in water: 1 part in 2 parts H<sub>2</sub>O. Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

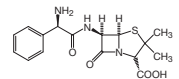
**References:**

1. Nguyen-Disteche, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size
13398.01	25 g
13398.02	100 g

**Ampicillin trihydrate research grade, Ph. Eur.**

(6-[D(-)-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)  
C<sub>16</sub>H<sub>19</sub>N<sub>3</sub>O<sub>4</sub>S·3H<sub>2</sub>O ♦ Mr 403.5 ♦ CAS [7177-48-2]



**DANGER**  
H317-H334 ♦ EINECS 200-709-7 ♦ WGK 1 ♦ HS 29411000

Semi-synthetic derivative of penicillin. Inhibitor of cell wall synthesis in *E. coli*. Soluble 1 part in 150 parts H<sub>2</sub>O as well as in diluted acids and bases. Insoluble in alcohol.

Assay (titr.) 96.0 - 100.5 %

**References:**

1. Nguyen-Disteche, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size
13397.01	10 g
13397.03	100 g

**Aneurin**

see 36020 Thiamine-HCl, page 139



■ **Annexin V-APC Apoptosis Detection Kit** 100 reactions

HS 38220000  
Storage temperature +2 °C to +8 °C

Annexins are a family of calcium-dependent phospholipid-binding proteins, which bind to phosphatidylserine (PS). Externalization of phosphatidylserine residues in the outer plasma membrane of apoptotic cells allows detection via Annexin V. Once the apoptotic cells are bound with labelled Annexin V, they can be visualized with fluorescent microscopy or cytometry.

Since loss of membrane integrity is a pathognomonic feature of necrotic cell death, necrotic cells will stain with specific membrane-impermeant nucleic acid dyes such as propidium iodide. The membrane integrity of apoptotic cells can be demonstrated by the exclusion of these dyes.

**Content:** 500 µl Annexin V-APC (Allophycocyanin), 50 ml 10x Binding Buffer, 1 ml propidium iodide

Cat.No.	Size
39901.01	1 kit

■ **Annexin V-Biotin Apoptosis Detection Kit** 100 reactions

HS 38220000  
Storage temperature +2 °C to +8 °C

Annexins are a family of calcium-dependent phospholipid-binding proteins, which bind to phosphatidylserine (PS). Externalization of phosphatidylserine residues in the outer plasma membrane of apoptotic cells allows detection via Annexin V. Once the apoptotic cells are bound with labelled Annexin V, they can be visualized with fluorescent microscopy or cytometry.

Since loss of membrane integrity is a pathognomonic feature of necrotic cell death, necrotic cells will stain with specific membrane-impermeant nucleic acid dyes such as propidium iodide. The membrane integrity of apoptotic cells can be demonstrated by the exclusion of these dyes.

**Content:** 500 µl Annexin V-Biotin, 50 ml 10x Binding Buffer, 1 ml propidium iodide

Cat.No.	Size
39902.01	1 kit

■ **Annexin V-FITC Apoptosis Detection Kit** 100 reactions

HS 38220000  
Storage temperature +2 °C to +8 °C

Annexins are a family of calcium-dependent phospholipid-binding proteins, which bind to phosphatidylserine (PS). Externalization of phosphatidylserine residues in the outer plasma membrane of apoptotic cells allows detection via Annexin V. Once the apoptotic cells are bound with labelled Annexin V, they can be visualized with fluorescent microscopy or cytometry.

Since loss of membrane integrity is a pathognomonic feature of necrotic cell death, necrotic cells will stain with specific membrane-impermeant nucleic acid dyes such as propidium iodide. The membrane integrity of apoptotic cells can be demonstrated by the exclusion of these dyes.

**Content:** 500 µl Annexin V-FITC, 50 ml 10x Binding Buffer, 1 ml propidium iodide

Cat.No.	Size
39900.01	1 kit

■ **Annexin V-PE Apoptosis Detection Kit** 100 reactions

HS 38220000  
Storage temperature +2 °C to +8 °C

Annexins are a family of calcium-dependent phospholipid-binding proteins, which bind to phosphatidylserine (PS). Externalization of phosphatidylserine residues in the outer plasma membrane of apoptotic cells allows detection via Annexin V. Once the apoptotic cells are bound with labelled Annexin V, they can be visualized with fluorescent microscopy or cytometry.

Since loss of membrane integrity is a pathognomonic feature of necrotic cell death, necrotic cells will stain with specific membrane-impermeant nucleic acid dyes such as propidium iodide. The membrane integrity of apoptotic cells can be demonstrated by the exclusion of these dyes.

**Content:** 500 µl Annexin V-PE (R-phycoerythrin), 50 ml 10x Binding Buffer, 1 ml propidium iodide

Cat.No.	Size
39903.01	1 kit



■ **Anode Fluid 3 for IEF**

HS 38220000  
Storage temperature +2 °C to +8 °C

Contains 0.17 g L-aspartic acid and 0.18 g L-glutamic acid in 50 ml water. Recommended for general use with SERVLYT™ PRECOTES™

Cat.No.	Size
42984.03	50 ml

■ **Anti-Corrosive Additive, 10x concentrate**

  **WARNING**  
H302-H373 ♦ WGK 1 (L) ♦ HS 29053100

Added to the water circulation of the cooling unit for HPE™ BlueTower and HPE™ BlueHorizon flatbed systems to prevent corrosion.

Cat.No.	Size
43392.01	1 L

■ **Applicator Strips 2 x 3.5**

HS 39269097  
19 slots, 100 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 100 x 6 x 1 mm, 19 sample slots: 2 x 3.5 mm, distance of slots: 3 mm, sample volume 5 - 10 µl.

Cat.No.	Size
42914.01	6 pieces

■ **Applicator Strips 3.5 x 2**

HS 39269097  
43 slots, 240 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 240 x 6 x 1 mm, 43 sample slots: 3.5 mm x 2 mm, distance of slots: 2 mm, sample volume 5 - 10 µl.

Cat.No.	Size
42899.01	3 pieces

■ **Applicator Strips 3.5 x 2**

HS 39269097  
15 slots, 100 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 100 x 6 x 1 mm, 15 sample slots: 3.5 x 2 mm, distance of slots: 3 mm, sample volume 5 - 10 µl.

Cat.No.	Size
42915.01	6 pieces

■ **Applicator Strips 7 x 1.2**

HS 39269097  
24 slots, 263 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 263 x 6 x 1 mm, 24 sample slots: 7 x 1 mm, distance of slots: 3 mm, sample volume 10 - 15 µl.

Cat.No.	Size
42989.01	3 pieces

■ **Applicator Strips Kit**

HS 39269097  
Contains 1 each of cat. nos. 42899, 42989, 42914, 42915

Cat.No.	Size
42937.02	1 kit

### ■ Aprotinin from bovine lung lyophil.

(Trypsin inhibitor from bovine lung; Trasylol®)  
M<sub>r</sub> ca. 6500 ♦ CAS [9087-70-1]



**DANGER**  
H317-H334 ♦ EINECS 232-994-9 ♦ WGK 1 ♦ HS 35040090  
Storage temperature +2 °C to +8 °C

Purified inhibitor of trypsin, chymotrypsin, plasmin and especially kallikrein.  
For *in vitro* inhibition of fibrinolytic activity in blood samples (1).

**Unit definition:** 1 IU (inhibitor unit) inhibits 1 U trypsin as defined by cleavage of 1 μmol BAEE (N-benzoyl-L-arginine ethyl ester) per minute (see under trypsin, cat.no. 37291).

**Activity in other units:** min. 3 Ph. Eur. Units (PEU)/mg, based on dried substance.

**Unit definition:** 1 Ph. Eur. Unit of aprotinin inhibits 50 % of the enzymatic activity of 2 microkatal trypsin, measured with BAEE as substrate at pH 8.0 and 25 °C.

**Activity in other units:** min. 5850 Kallikrein Inactivator Units (KIU)/mg, based on dried substance. (KIU = PEU x 60 x 32.5).

Trasylol = registered trademark of Bayer AG

#### References:

1. Trautschold, E. et al. (1967) *Biochem. Pharmacol.* **16**, 59-72

Cat.No.	Size
13718.01	10 mg
13718.02	25 mg
13718.03	100 mg

### ■ AquaSpark™ Alkaline Phosphatase Substrate

2 mM in DMSO

M<sub>r</sub> 474.38

HS 38220000

Storage temperature +2 °C to +8 °C

AquaSpark™ Alkaline Phosphatase Substrate is an optimized, cost-effective chemiluminescent substrate for alkaline phosphatase detection in ELISA and Western and Southern Blots.

AquaSpark™ substrates offer unique advantages over the existing products as they can work as single agents without the need for enhancers, they have a higher efficiency and sensitivity over currently existing probes. Very high light levels are reached immediately after activation by phosphatase enzyme and a green light emission persists for 30 min or even hours.

AquaSpark™ Alkaline Phosphatase Substrate shows significantly higher signal intensities and very low background compared to other luminogenic alkaline phosphatase substrates.

100 μl will give 20 ml working solution.

Patent pending.

- ◆ No expensive additional enhancer necessary
- ◆ Use of significantly less substrate (1/5 or less)
- ◆ Strongest signal on the market
- ◆ Best signal-to-noise ratio – for highest sensitivity
- ◆ Long lasting signal on highest niveau

Cat.No.	Size
42593.01	100 μl

### □ ARALDITE® Accelerator DY 964

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 141

### □ ARALDITE® CY 212

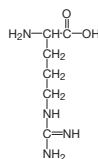
see 13825 Renlam® M-1, page 99

### ■ L-Arginine base research grade, Ph. Eur., USP

(Arg; L-2-Amino-5-guanidinovaleic acid)  
C<sub>6</sub>H<sub>14</sub>N<sub>4</sub>O<sub>2</sub> ♦ M<sub>r</sub> 174.2 ♦ CAS [74-79-3]



**WARNING**  
H319 ♦ EINECS 200-811-1 ♦ WGK 1L ♦ HS 29224985  
Assay (titr.) 98.5 - 101.0 %  
Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
13909.02	100 g
13909.03	1 kg

### ■ L-Arginine-HCl research grade, Ph. Eur., USP

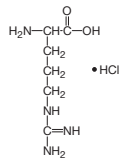
(Arg HCl; L-2-Amino-5-guanidinovaleic acid hydrochloride)

C<sub>6</sub>H<sub>14</sub>N<sub>4</sub>O<sub>2</sub>·HCl ♦ M<sub>r</sub> 210.7 ♦ CAS [1119-34-2]

EINECS 214-275-1 ♦ WGK 1 ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
13940.02	100 g
13940.04	1 kg

### ■ ASB-14 research grade

(Amidosulfobetaine-14; 3-[N,N-Dimethyl(3-mristoylamino)propyl]ammonio] propanesulfonate)  
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D analysis. ASB-14 shows better protein solubilization properties than CHAPS, by which the identification of previously undetected membrane proteins was enabled.

CMC 8 mM (20 - 25 °C)

Purity (HPLC) min. 98.0 %

#### References:

1. Carroll, J., et al., *J. Biol. Chem.* **277**, 50311
2. Herbert, B., (1999) *Electrophoresis* **20**, 660
3. Chevallet, M., et al., (1998) *Electrophoresis* **19**, 1901

Cat.No.	Size
20757.01	1 g
20757.02	5 g

### ■ L-Ascorbic acid cryst. research grade, Ph. Eur.

(Vitamin C)

C<sub>6</sub>H<sub>8</sub>O<sub>6</sub> ♦ M<sub>r</sub> 176.1 ♦ CAS [50-81-7]

EINECS 200-066-2 ♦ WGK 1L ♦ HS 29362700

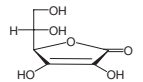
Inhibitor of β-N-acetylhexosaminidase (1).

Assay (titr.) min. 99.0 - 100.5 %

[α] 20 °C/D

(c=10 % in water) +20.5° to + 21.5 °

Heavy metals (Pb) max. 10 ppm



#### References:

1. Kanfer, J.N. & Spielvogel, C.H. (1973) *Biochim. Biophys. Acta* **327**, 405-11

Cat.No.	Size
14030.02	100 g

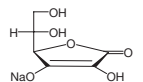
### ■ L-Ascorbic acid-Na-salt research grade, Ph. Eur.

(Sodium-L-(+)-ascorbate)

C<sub>6</sub>H<sub>7</sub>O<sub>6</sub>·Na ♦ M<sub>r</sub> 198.1 ♦ CAS [134-03-2]

EINECS 205-126-1 ♦ WGK 1 ♦ HS 29362700

Assay (titr.) 99.0 - 101.0 %



Cat.No.	Size
14033.02	500 g

### ■ L-Asparagine-monohydrate research grade, Ph. Eur.

(Asn; L-2-Aminosuccinamic acid)

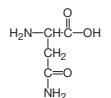
C<sub>4</sub>H<sub>8</sub>N<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O ♦ M<sub>r</sub> 150.1 ♦ CAS [5794-13-8]

EINECS 200-735-9 ♦ WGK 1L ♦ HS 29224985

Used in cell culture media and is a component of MEM non-essential amino acids solution.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
14110.03	250 g
14110.04	1 kg



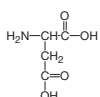
**L-Aspartic acid** research grade, Ph. Eur.

(Asp; L-Aminosuccinic acid; L-2-Aminobutanedioic acid)  
 $C_4H_7NO_4$  ♦ M, 133.1 ♦ CAS [56-84-8]

EINECS 200-291-6 ♦ WGK 1L ♦ HS 29224985

Ph. Eur.

Assay (titr.) 98.5 - 101.5 %  
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
14180.02	250 g

**ATP**

see 10920 Adenosine-5'-triphosphate·Na<sub>2</sub>-salt, page 5

**Auxins**

see 26181 Indole-3-acetic acid, page 63

**Auxins**

see 26172 Indole-3-butyric acid, page 63

**Avicel PH 101®**

see 14204 Cellulose microcrystalline ca. 0.05 mm, page 24

**Avicel PH 105®**

see 14205 Cellulose microcrystalline ca. 0.02 mm, page 23

**2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)-2NH<sub>4</sub>-salt** cryst. analytical grade

(ABTS)  
 $C_{18}H_{16}N_4O_6S_4 \cdot 2NH_4$  ♦ M, 548.69 ♦ CAS [30931-67-0]

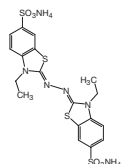
 WARNING  
 H315-H319-H335 ♦ EINECS 250-396-6 ♦ WGK 1 ♦  
 HS 29342080

Chromogen for peroxidase in enzyme-linked immunoassay (ELISA) (1). For laccase and angiotensin I-converting enzyme assay (2).

TLC: one spot

**References:**

- Groome, N.P. (1980) J. Clin. Chem. Clin. Biochem. **18**, 345-9
- Shin, T. et al. (1987) Anal. Biochem. **166**, 380-8



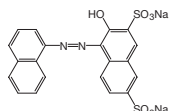
Cat.No.	Size
14364.01	1 g

**Azorubin pure**

(Acid Red 14; Chromotrope FB)  
 C.I.14720 ♦  $C_{20}H_{12}N_2O_7S_2 \cdot Na_2$  ♦ M, 502.4 ♦  
 CAS [3567-69-9]

EINECS 222-657-4 ♦ WGK 2L ♦ HS 29270000


λ max. (0.001 % in water) 514 - 522  
 A 1 cm/λ max. (0.001 % in water) min. 0.4



Cat.No.	Size
14410.01	25 g

**Bacitracin** research grade, USP

(Bacidrin, Ginebatine)  
 M, ca. 1422 ♦ CAS [1405-87-4]

 WARNING  
 H315-H317-H319-H335 ♦ EINECS 215-786-2 ♦  
 WGK 2 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Min. 60 000 IU/g. Main component Bacitracin A. Bactericidal activity requires divalent cations like Zn<sup>2+</sup> (1); peptide antibiotic; inhibitor of peptidoglycan synthesis.

**References:**

- Scogin, D. et al. (1980) Biochemistry **19**, 3348-52

Cat.No.	Size
14419.02	25 g

**Basic Blue 17**

see 36693 Toluidine Blue O salt, page 139

**Basic Blue 9**

see 29198 Methylene Blue, page 72

**Basic Red 5**

see 30305 Neutral Red, page 76

**Basic Violet 3**

see 27335 Crystal Violet, page 32

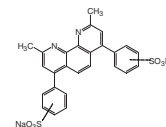
**Bathocuproine disulfonic acid-Na<sub>2</sub>-salt** analytical grade

(2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline disulfonate)

$C_{26}H_{18}N_2O_6S_2 \cdot Na_2$  ♦ M, 564.6 ♦ CAS [52698-84-7]

EINECS 258-111-7 ♦ WGK 1 ♦ HS 29339980

Strong chelator used for the spectrophotometric determination of copper and iron in biological samples and copper detection in polyacrylamide gels.



Assay (titr.) min. 98.0 %

**References:**

- Bruynincky, W.J. et al. (1978) Anal. Biochem. **89**, 174-7

Cat.No.	Size
14470.02	1 g
14470.03	5 g


**Bayol F** research grade

(Paraffin oil, low viscosity; Bayol 35)  
 HS 27101985

Suitable as cooling fluid for use in horizontal electrophoresis.

Cat.No.	Size
14500.01	100 ml
14500.02	1 L

**BCA Protein Assay Macro Kit**

 DANGER  
 H334 ♦ HS 38220000  
 Storage temperature +2 °C to +8 °C

The assay bases on the bichinonic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinonic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.


- ♦ Fast and sensitive assay: linear detection range from 25 – 1000 µg protein/ml
- ♦ Easy to use: contains ready-to-use reagents and protein standard
- ♦ Compatible with many detergents
- ♦ Less binding variation between different proteins than Bradford assay

**References:**

- Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size
39228.01	250 tests
39228.02	500 tests

**BCA Protein Assay Micro Kit**

 DANGER  
 H334 ♦ HS 38220000  
 Storage temperature +2 °C to +8 °C

The assay bases on the bichinonic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinonic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.

- ♦ Fast and sensitive assay: linear detection range from 0.5 – 20 µg protein/ml
- ♦ Easy to use: contains ready-to-use reagents and protein standard
- ♦ Compatible with many detergents
- ♦ Less binding variation between different proteins than Bradford assay

**References:**

- Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size
39229.01	480 tests

**BCIP**

see 15247 5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt, page 21

### BCIP/NBT Ready-To-Use Substrate

for immunohistochemistry and blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component substrate solution for detection of alkaline phosphatase in immunohistochemical, *in situ* hybridization and blotting procedures. A very fine blue-purple precipitate will be localized at sites of AP activity on tissue sections. Purple bands or dots will be visible at the sites of AP activity on membranes.

Contains a proprietary enhancer and a non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size
15246.01	100 ml

### BDMA

see 14835 Benzyl dimethylamine, page 15

### BEEM capsules 5.2 mm for EM-Embedding

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size
43510.01	100 pieces

### Bentonite-SF research grade, NF

(Aluminium silicate; Montmorillonite)

CAS [1302-78-9]

EINECS 215-108-5 ♦ HS 25081000

Emulsifier and adsorbent for proteins and viruses. Conforms to NF in its gel-forming capacity. For detoxification use a 2 % aqueous suspension. Suitable for the removal of cyanate in urea solutions.

Water content	5.0 - 8.0 %
Swelling 2 % in water	min. 24 ml
pH 2 % in water	9.5 - 10.5

#### References:

1. Wystrup, G. et al. (1979) Eur. J. Biochem. **100**, 101-13

Cat.No.	Size
14515.02	2,5 kg

### Benzyl dimethylamine research grade

(BDMA; N, N-Dimethylbenzylamine)

$C_9H_{13}N$  ♦  $M_r$  135.2 ♦ CAS [103-83-3]



DANGER

H226-H302-H312-H314-H332-H412

♦ EG-Index 612-074-00-7 ♦ GGVSE/

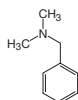
ADR 8 II UN2619 ♦ IATA 8 II UN2619 ♦ EINECS 203-149-1 ♦ WGK 2L ♦ HS 29214900

Catalyst of very low viscosity for epoxy-polyester embedding in electron microscopy.

#### References:

1. Freeman, J.A. & Spurlock, B.O. (1962) J. Cell Biol. **13**, 137-43

Cat.No.	Size
14835.01	10 ml



### Benzylpenicillin potassium

see 31749 Penicillin G-K-salt, page 80

### Benzylsulfonyl fluorid

see 32395 Phenylmethylsulfonyl fluoride, page 82

### Bind-Silane

see 28739 3-Methacryloxypropyltrimethoxysilane (Bind-Silane), page 71

### BIO-5000 Plus VIS Gel Scanner

HS 90278017

The BIO-5000 Plus VIS Gel Scanner is a dual platform scanner specially designed for scanning of electrophoresis gels and blots by visual detection. It is equipped with energy-saving LEDs and an optical CCD whose resolution is up to 4,800 dpi. The range of the optical density is between 0.05 and 3.77 OD providing a smarter way to capture differences among each layer of scanned electrophoresis gels.

With a built-in auto-focus function, BIO-5000 Plus is capable of shifting the focal length to the best position automatically for images of top quality. By the design of the Emulsion Direct Image Technology (E.D.I.T.) and holders for electrophoresis gels, it is convenient to put your BIO-5000 Plus in operation and lowers the risk of mutual infection in experiments. Therefore, BIO-5000 Plus is the best choice of scanning electrophoresis gels.

- ♦ Leak-free holder for scanning wet electrophoresis gels in transmission mode
- ♦ Scanning of stained blot membranes in reflection mode
- ♦ Energy-saving LEDs as light source
- ♦ Short warm-up times
- ♦ CCD image sensor
- ♦ Resolution up to 4,800 dpi
- ♦ Dynamic range over approx. 3.7 O.D. units
- ♦ Auto-focus for highest image quality
- ♦ Easy-to-use scanning software
- ♦ Scanning area up to 216 mm x 254 mm
- ♦ IQ/OQ/PQ and FDA CFR Part 11 ready with LabImage Software



#### Specifications:

Scanning Modes

Color and grayscale, single scanning pass

True 48-bit color

16-bit grayscale

(65,536 shades of gray)

Reflective: max. 216 x 356 mm

Transmission: max. 216 x 254 mm

3.7 O.D.

Scanning Area

4,800 dpi x 9,600 dpi

Linearity

Resolution

Interface

Dimension

Weight

Hi-Speed USB 2.0

385 x 158 x 567 mm

12 kg

Cat.No.	Size
BIO-5000P	1 piece

### (+)-Biotin cryst. research grade, Ph. Eur., USP

(d-Biotin; Vitamin H)

$C_{10}H_{16}N_2O_3S$  ♦  $M_r$  244.3 ♦ CAS [58-85-5]

EINECS 200-399-3 ♦ WGK 1L ♦ HS 29362900

Tested for use in tissue culture.

Assay (titr.)

98.5 - 100.5 %

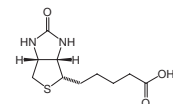
Heavy metals

max. 10 ppm

#### References:

1. Bayer, E. & Wilchek, M. (1974) Methods Enzymol. **34**, 265-7

2. Knappe, J. (1970) Annu. Rev. Biochem. **39**, 757-76



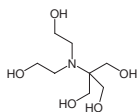
Cat.No.	Size
15060.03	2,5 g

**2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol analytical grade**

(Bis(2-hydroxyethyl)amino)-tris(hydroxy methyl) methane; BISTRIS)

C<sub>8</sub>H<sub>19</sub>NO<sub>5</sub> ♦ M, 209.24 ♦ CAS [6976-37-0]

EINECS 230-237-7 ♦ WGK 1 ♦ HS 29221985



Zwitterionic buffering substance for a pH range of 5.8 – 7.2 (1). Bis-Tris is used in biochemistry and molecular biology and is a common component of many buffer systems for electrophoresis. Since it may form a complex with some common metals, such as Cu(II) and Pb(II), formation constants should be taken into account when using this buffer in a solution containing metal ions. Bis-Tris is a substitute for the highly toxic buffer cacodylate.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
280 nm	max. 0.1
Iron (Fe)	max. 5 ppm
Lead (Pb)	max. 3 ppm
pH 10 % in water	9.4 - 10.4
pKa 20	6.46

**References:**

1. Daabo, M. & Bates, R. (1970) J. Phys. Chem. **74**, 702-5

Cat.No.	Size
15107.04	250 g

**Bis(acrylamido)methane**

see 29195 N,N'-Methylene bisacrylamide 2X, page 72

**BISTRIS**

see 15107 2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol, page 16

**Blank FocusGel 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Storage temperature +2 °C to +8 °C

24 slots for 25 µl. To perform IEF, Blank FocusGels are equilibrated in the ampholyte mixture of choice with or without urea prior to electrophoresis.

Cat.No.	Size
43413.01	4 gels

**Blank PRECOTES™ PAG layer 300 µm, Size 125 x 125 mm**



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Blank PRECOTES™ were developed by SERVA to provide a versatile solution to perform isoelectric focusing (IEF) of any pH range. Blank PRECOTES™ are thin (0.3 mm) polyacrylamide gels cast onto GEL-FIX™ support film that contain only BisTris buffer pH 6.5. They are given the prefix »blank« to indicate that they are (almost) »empty« gels with a matrix that can be adapted to anything the user wants it to be.

Blank PRECOTES™ are equilibrated in the ampholyte mixture of choice prior to electrophoresis. Shelf-life of Blank PRECOTES™ is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PRECOTES is a registered trademark of SERVA.

Cat.No.	Size
42759.01	5 gels

**BlueBlock PF (10x) for Blotting and ELISA**

HS 38220000

Protein-free, polymer-based blocking reagent, delivered as a 10x concentrate.

To achieve a good signal-to-noise ratio in blotting, ELISA or other immunoassays, it is important to block nonspecific antibody binding sites on the transfer membrane. Protein based blocking solutions like skim milk or BSA solutions may not only block unspecific binding sites, but mask as well specific binding sites. With BlueBlock, the specific binding sites remain accessible while nonspecific reactions are suppressed, thus leading to an increase in signal intensity. It is suitable for colorimetric and chemiluminescence detection systems.

Cat.No.	Size	EUR
42591.01	250 ml	45,00
42591.02	1 L	140,00

**BlueBlot Semi-Dry Blotter SD11**

HS 90272000

For fast and gentle electrotransfer of proteins in Western Blots.

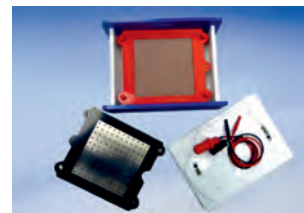
The BlueBlot semi-dry blotter forms a homogeneous electrical field that guarantees fast and efficient transfer of proteins from gel to membrane.

As associated with semi-dry blotting compared to tank blotting less heat is generated for gentle protein transfer. It is fast and requires less buffer.

By applying the Xpress Blotting Buffer (cat. no. 42661) semi-dry transfer of high and low molecular weight proteins is done fast and efficient within 15 minutes. Moreover, all common continuous and discontinuous buffer systems can be applied without any limitation.

Anode is made from platinum-covered steel net, cathode is made from a stainless steel plate. The spring-mounted anode allows blotting of thicker gels and gel stacks. To avoid air bubbles within the blotting system the cathode carries drill holes to transport gas generated by the electrochemically blotting process from inside to outside. The electrodes are built into a stable acrylic housing that is resistant to 10 % ethanol and easy to clean. The long-lasting electrodes can be dismantled and cleaned separately.

The BlueBlot semi-dry blotter has a blotting area of 11 cm x 11 cm. The electrode sets BB-E11 (11 cm x 11 cm) and BB-E17 (17 cm x 17 cm) are obtainable separately and fit into the same base unit. With the 17 cm x 17 cm electrode set up to 8 mini gels can be blotted simultaneously.



- ♦ Platinum-covered steel net as anode
- ♦ Spring-mounted anode for blotting stacks
- ♦ Stainless steel plate as cathode
- ♦ Blotting area: 11 cm x 11 cm
- ♦ Deployable for thicker gels and blotting stacks
- ♦ Dimensions: 31 cm x 23 cm x 11 cm
- ♦ Weight: 3 kg

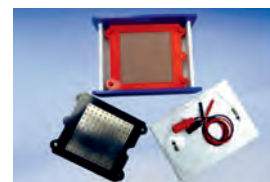
Cat.No.	Size
BB-SD11	1 piece

**BlueBlot Semi-Dry Blotter SD17**

HS 90272000

For fast and gentle electrotransfer of proteins in Western Blots. For more information please refer to BlueBlot Semi-Dry Blotter SD11.

The electrode sets BB-E11 (11 cm x 11 cm) and BB-E17 (17 cm x 17 cm) are obtainable separately and fit into the same base unit.



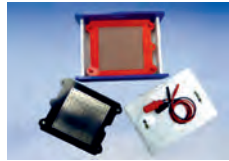
- ♦ Platinum-covered steel net as anode
- ♦ Spring-mounted anode for blotting stacks
- ♦ Stainless steel plate as cathode
- ♦ Blotting area: 17 cm x 17 cm
- ♦ Deployable for thicker gels and blotting stacks
- ♦ Dimensions: 31 cm x 23 cm x 11 cm
- ♦ Weight: 3 kg

Cat.No.	Size
BB-SD17	1 piece

**BlueBlot Semi-Dry Blotter SD26**

HS 90272000

For fast and gentle electrotransfer of proteins in Western Blots. For more information please refer to BlueBlot Semi-Dry Blotter SD11. The BlueBlot semi-dry blotter has a blotting area of 24 cm x 26 cm.



- ◆ Platinum-covered steel net as anode
- ◆ Spring-mounted anode for blotting stacks
- ◆ Stainless steel plate as cathode
- ◆ Blotting area: 24 cm x 26 cm
- ◆ Deployable for thicker gels and blotting stacks

Cat.No.	Size
BB-SD26	1 piece

**BlueClear SB for antibody stripping**

HS 38220000

Storage temperature +15 °C to +30 °C

Ready-to-use buffer for efficient stripping of high-affinity antibodies from Western blot membranes after chemiluminescence detection. Easy-to-use - Just incubate the membrane in the stripping buffer for 30-60 mins at room temperature. Hard-to-remove antibodies are efficiently stripped by incubation in heated buffer. After washing in PBST or TBST, the membrane may be blocked and probed again..

- ◆ Fast, simple and highly efficient
- ◆ Gentle
- ◆ Without β-mercaptoethanol or DTT
- ◆ Suitable for nitrocellulose and PVDF membranes

Cat.No.	Size
42599.01	250 ml
42599.02	1 L

**BlueMarine™ 100**

HS 90272000

Gel format 7 x 10 cm for quick analysis of up to 28 samples. Contains main unit, 1 removable UV transparent gel tray (7 x 10 cm), 2 gel casting gates, 1 comb (1.0 mm, 8 samples).



**Operational Data**

Maximum operating voltage: 300 V  
 Maximum operating current: 200 mA  
 Approx. gel volume (5 mm gel): 35 ml  
 Possible comb positions: 2  
 Maximum of loadable samples: 28  
 Electrode separation: 18 cm  
 Recommended volts per cm: 14 - 140

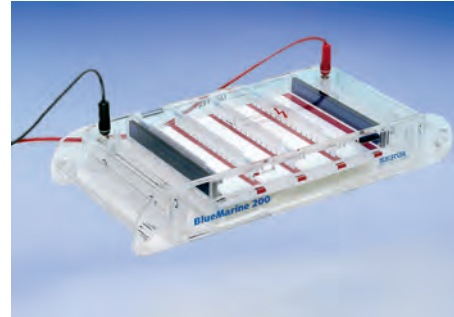
BlueMarine™ is a trademark of SERVA.

Cat.No.	Size
BM-100	1 piece

**BlueMarine™ 200**

HS 90272000

Gel formats 15 x 15 cm or 15 x 20 cm for best resolution or high throughput analysis. Contains main unit, 1 removable UV transparent gel tray (15 x 20 cm), 1 removable UV transparent gel tray (15 x 15 cm), 2 gel casting gates, 2 combs (1.0 mm, 16 samples).



**Operational Data (Tray: 15 x 15 cm / 15 x 20 cm):**

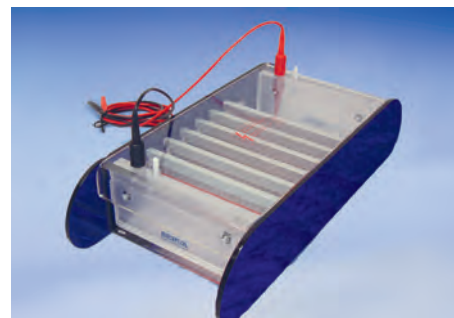
Maximum operating voltage: 500 V / 500 V  
 Maximum operating current: 300 mA / 300 mA  
 Approx. gel volume (5 mm gel): 115 ml / 150 ml  
 Possible comb positions: 2 / 4  
 Maximum of loadable samples: 62 / 124  
 Electrode separation: 28.5 cm / 28.5 cm  
 Recommended volts per cm: 20 - 200 / 20 - 200

Cat.No.	Size
BM-200	1 piece

**BlueMarine™ HTS**

HS 90272000

Gel format 17.5 cm x 19.2 cm for high resolution long runs of single samples or analysis of complete 96-well microtiter plates. By changing the left/right orientation of the comb you can position the sample wells one upon the other or shifted to each other. Contains main unit, 1 removable UV transparent gel tray, 6 aluminum combs with 17 sample wells.



**Operational Data:**

Maximum operating voltage: 500 V  
 Maximum operating current: 300 mA  
 Approx. gel volume (5 mm gel): 160 ml  
 Possible comb positions: 6  
 Maximum of loadable samples: 102  
 Electrode separation: 28.5 cm  
 Recommended volts per cm: 20 - 200 V  
 Dimensions (W x L x H): 19.5 x 38 x 80 cm

Cat.No.	Size
BM-HTS	1 piece

**BlueMarine™ HTS Casting Adaptor**

HS 90272000

Casting stand to hand cast agarose gels for BlueMarine™ HTS electrophoresis chamber (cat. no. BM-HTS).

Cat.No.	Size
BM-HTS-CA	1 piece



**BlueMarine™ HTS Replacement Tray**

HS 90272000

Replacement tray for BlueMarine™ HTS .

Cat.No.	Size
BM-HTS-RT	1 piece

**BluePower™ 300 BLOT Power Supply**

HS 90272000

The BluePower™ 300 BLOT Power Supply (300 V, 2 A, 300 W) is suited for applications requiring high current like tank blotting or semi-dry blotting of larger protein gels. It is also compatible with separation of nucleic acids. 4 x 2 outlets, programmable.

All SERVA BluePower™ power supplies are easy-to-use, safe and reliable. They are fully overload-protected including short-circuit of outputs: an automatic power-off function stops the voltage when ground leakage is detected.

- ◆ Automatic cross-over function with constant voltage, current and power
- ◆ Programmable power supplies (9 x 9 steps)
- ◆ Free data logging, transfer and remote control via USB
- ◆ Timer function (h/Vh)
- ◆ Voltage ramp mode



Cat.No.	Size
BP-300-BLO	1 piece

**BluePower™ 3000 HPE™ Power Supply**

HS 90272000

The BluePower™ 3000 HPE™ Power Supply (3000 V, 200 mA, 300 W) is designed for high voltage applications like isoelectric focusing, horizontal 2D electrophoresis. It comes with a special mode for low current applications such as IEF: the power supply can measure currents as low as 10 microAmps and keep its voltage constant at even 0 current. Other applications like SDS PAGE and submarine electrophoresis can be performed as well. 4 x 2 outlets, programmable.

All SERVA BluePower™ power supplies are easy-to-use, safe and reliable. They are fully overload-protected including short-circuit of outputs: an automatic power-off function stops the voltage when ground leakage is detected.

- ◆ Automatic cross-over function with constant voltage, current and power
- ◆ Programmable power supplies (9 x 9 steps)
- ◆ Free data logging, transfer and remote control via USB
- ◆ Timer function (h/Vh)
- ◆ Voltage ramp mode.



Cat.No.	Size
BP-3000-HPE	1 piece

**BluePower™ 400 MARINE Power Supply**

HS 90272000

The BluePower™ 400 MARINE Power Supply (400 V, 500 mA, 50 W) serves many applications like submarine electrophoresis of nucleic acid agarose gels and SDS PAGE in mini gel format. 4 x 2 outlets, programmable. All SERVA BluePower™ power supplies are easy-to-use, safe and reliable. They are fully overload-protected including short-circuit of outputs: an automatic power-off function stops the voltage when ground leakage is detected.

- ◆ Automatic cross-over function with constant voltage, current and power
- ◆ Programmable power supplies (9 x 9 steps)
- ◆ Free data logging, transfer and remote control via USB
- ◆ Timer function (h/Vh)
- ◆ Voltage ramp mode.



Cat.No.	Size
BP-400-MAR	1 piece

**BluePower™ 600 PRiME™ Power Supply**

HS 90272000

The BluePower™ 600 PRiME™ Power Supply (600 V, 1000 mA, 300 W) is an allround instrument serving many applications, e.g. SDS PAGE, blotting and submarine electrophoresis. It is particularly advised for operation of up to four vertical slab gel units run at high voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

All SERVA BluePower™ power supplies are easy-to-use, safe and reliable. They are fully overload-protected including short-circuit of outputs: an automatic power-off function stops the voltage when ground leakage is detected.

- ◆ Automatic cross-over function with constant voltage, current and power
- ◆ Programmable power supplies (9 x 9 steps)
- ◆ Free data logging, transfer and remote control via USB
- ◆ Timer function (h/Vh)
- ◆ Voltage ramp mode.



Cat.No.	Size
BP-600-PRI	1 piece

**BluePower™ 6000 IPG Power Supply**

HS 90272000

The BluePower™ 6000 IPG Power Supply (6000 V, 150 mA, 300 W) is designed for high voltage applications like isoelectric focusing in IPG strips. It comes with a special mode for low current applications such as IEF: the power supply can measure currents as low as 10 microAmps and keep its voltage constant at even 0 current. Other applications like SDS PAGE and submarine electrophoresis can be performed as well. 4 x 2 outlets, programmable.

All SERVA BluePower™ power supplies are easy-to-use, safe and reliable. They are fully overload-protected including short-circuit of outputs: an automatic power-off function stops the voltage when ground leakage is detected.

- ◆ Automatic cross-over function with constant voltage, current and power
- ◆ Programmable power supplies (9 x 9 steps)
- ◆ Free data logging, transfer and remote control via USB
- ◆ Timer function (h/V/h)
- ◆ Voltage ramp mode.



Cat.No.	Size
BP-6000-IPG	1 piece

**BlueSlick™**



**DANGER**  
 H225-H319-H336 ◆ MAK/TRK 500 mg/m<sup>3</sup>; 200 ml/m<sup>3</sup> for isopropanol ◆ GGVSE/ADR 3 II UN1993 ◆ IATA 3 II UN1993  
 ◆ WGK 1 ◆ HS 38220000

Non-toxic BlueSlick™ is the alternative to silane-containing products and is non-irritant to eyes. It can be handled outside of a fume-hood. Suitable to all applications in electrophoresis (DNA sequencing, SDS PAGE, IEF PAGE). It does not affect the separation. Supplied in a safety spray bottle made from PE, free of propellant (CFC). One spray dose dispenses a quantity of 0.7 ml BlueSlick™ reagent. BlueSlick™ coating will last for 3 to 4 electrophoresis applications. Ready-to-use reagent for treatment of glass plates; non-toxic, prevents adhesion of gels to glass.



BlueSlick is a trademark of SERVA.

Cat.No.	Size
42500.01	250 ml

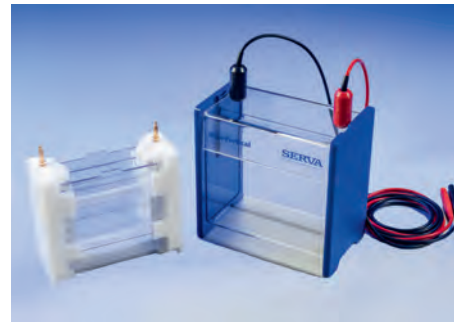
**BlueVertical™ PRiME™ Mini Slab Gel Unit**

HS 90272000

The BlueVertical™ PRiME™ is a dual mini tank system to operate one or two precast gels. It accommodates SERVAGel™ TG PRiME™, all other types of SERVAGel™ and all other commercially available precast gels with an outer cassette dimension of 10 x 10 x 0.7 cm. The fixture of the inner core unit has been re-engineered to provide four robust clamps (two on both sides) that fix two precast gel cassettes properly and tightly in their correct position. This ensures that the inner buffer chamber is leak-free separated from the outer buffer compartment.

Separation of proteins by SDS PAGE, native PAGE and IEF can be carried out as well as separation of nucleic acids. The outer buffer tank works as heat sink (passive cooling by buffer), sufficient for most applications mentioned above. You may run two SERVAGel™ TG PRiME™ simultaneously at 300 Volt. The run will be completed in about 35 minutes without warming up the buffer significantly. If additional cooling is required (e. g. for IEF applications), a magnetic stirrer can be applied to help circulation of buffer fluid.

The unit consists of an outer buffer tank and the inner core running unit. Mounting of precast gels does not require any tedious clamping but is a matter of seconds. The outer buffer tank is made from rugged transparent acrylic – watch your gel while running! A safety lid closes the top, giving the unit a very compact and robust design. Little bench space is required. The unit is, of course, in accordance with the European safety guidelines (CE mark). When quality becomes an issue – choose BlueVertical™ PRiME™.



**Specifications:**

Inner buffer volume	200 ml
Outer buffer volume	450 ml
Voltage (max)	500 Volt
Current (max)	250 mA
Operating temperature	4 °C - 65 °C
Electrodes	Rod electrode, platinum-coated
Dimensions	16 x 15.6 x 9.5 cm (WxHxD)
Weight	1.2 kg

Cat.No.	Size
BV-104	1 piece

**BlueVertical PRiME™ Blot Module**

HS 90272000

Tank blotting module to blot two gels directly in your BlueVertical™ PRiME™ chamber (BV104). Easy handling without clamps. No frail hinges.

Cat.No.	Size
BV-104-B.01	1 piece

**BlueVertical PRiME™ Casting Stand**

HS 90272000

The BlueVertical PRiME™ Casting Stand is a casting system to cast one or two vertical mini gels to be operated with the BlueVertical PRiME™ electrophoresis chamber (BV-104). It consists of a casting base with a rubber seal and a core unit to hold the glass plate sandwich in position. 1.0 mm spacers, combs and glass plates (plain, notched) have to be ordered separately.

Ordering information for casting accessories:

- BV-10-1.0: Comb, 1.0 mm, 10 wells
- BV-12-1.0: Comb, 1.0 mm, 12 wells
- BV-15-1.0: Comb, 1.0 mm, 15 wells
- BV-10-1.5: Comb, 1.5 mm, 10 wells
- BV-12-1.5: Comb, 1.5 mm, 12 wells
- BV-15-1.5: Comb, 1.5 mm, 15 wells
- BV-GP-P1.0: Glass plates with spacers (1.0 mm), plain (4), 3.0 mm glass
- BV-GP-P1.5: Glass plates with spacers (1.5 mm), plain (4), 3.0 mm glass
- BV-GP-N: Glass plates notched (4), 3.0 mm glass

Cat.No.	Size
BV-104-CS	1 piece

**BlueZol Lysis reagent for cells and tissues**



**DANGER**  
H300-H311-H314-H317  
Muta.2 ♦ GGVSE/ADR: 6.1 III UN2821 ♦ IATA: 6.1 III UN2821 ♦ WGK: 2

HS 38220000

Storage temperature +2 °C to +8 °C

BlueZol is a ready-to-use reagent for the isolation of total RNA from various biological materials such as animal and plant tissues, cell culture and bacterial cells.

Homogenisation or lysis of a biological sample in BlueZol leads to a separation into three phases: an aqueous upper phase, an organic lower phase and an interphase. The RNA remains in the aqueous phase and its purification is followed by precipitation in isopropyl alcohol. The highly effective RNase inhibitory property of BlueZol protects the integrity of the RNA during lysis and results in the isolation of high-quality RNA. The purified RNA is ideal for any downstream applications such as RT-PCR, *in vitro* translation, Northern Blotting, RNase protection assays or dot blot hybridization.

BlueZol can be used for the simultaneous isolation of RNA, DNA and protein from one sample. The DNA remains in the interphase and the proteins in the organic phase. After purification DNA can be used for PCR and Southern Blotting and the proteins for Western Blotting.

Cat.No.	Size
39808.01	100 ml

**Blue LED Table**

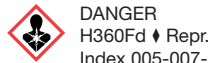
HS 90275000

Bluelight table for DIAS-III

Cat.No.	Size
BLED-T	1 piece

**Boric acid analytical grade**

H<sub>3</sub>BO<sub>3</sub> ♦ M<sub>r</sub> 61.83 ♦ CAS [10043-35-3]



**DANGER**  
H360Fd ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m<sup>3</sup> ♦ EG-Index 005-007-00-2 ♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Ph.Eur. Buffering substance.

Assay (titr.) 99.0 - 100.5 %  
Heavy metals (Pb) max. 15 ppm

Cat.No.	Size
15165.02	250 g
15165.01	1 kg

**Boric acid electrophoresis grade**

H<sub>3</sub>BO<sub>3</sub> ♦ M<sub>r</sub> 61.83 ♦ CAS [10043-35-3]



**DANGER**  
H360Df ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m<sup>3</sup> ♦ EG-Index 005-007-00-2 ♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Boric acid is used to prepare TBE buffer, the most frequently used buffer for DNA/RNA electrophoresis (1). Application tested quality for electrophoresis.

Assay (titr.) 99.0 - 100.5 %  
Heavy metals (Pb) max. 15 ppm

References:

1. Ogden, R. C. & Adams, D. A. (1987) *Methods Enzymol.* **152**, 61 - 87

Cat.No.	Size
15166.02	1 kg

**Bradford Reagent, 5x concentrate**



**DANGER**  
H314 ♦ GGVSE/ADR 3 II UN2924 ♦ IATA 3 II UN2924 ♦ WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Protein dye reagent for protein quantification after Bradford (1).

- ♦ Precise, reproducible and inexpensive
- ♦ Fast, only five minutes incubation before reading the sample at 595 nm
- ♦ Suitable for micro (1 - 25 µg protein/ml) and standard (100 - 1000 µg protein/ml) assays

50 ml Bradford reagent are sufficient for more than 200 micro assays (1-ml cuvette) or for more than 900 assays in micro titer plates.

References:

1. Bradford, M. M. (1976) *Anal. Biochem.*, **72**, 248 - 254

Cat.No.	Size
39222.01	50 ml
39222.02	200 ml
39222.03	500 ml

**Brij 35™ pract.**

(Polyoxyethylene monolauryl ether)

M<sub>r</sub> ca. 1200 ♦ CAS [9002-92-0]

EINECS 500-002-6 ♦ WGK 2L ♦ HS 34021300

n ca. 23. HLB 16.9. Suitable for the isolation of functional membrane complexes (1). Also applied in chemiluminescence analysis (2, 3).

*Brij = registered trademark of the CRODA International Plc.*

References:

1. Yoshikawa, S. et al. (1988) *Proc. Natl. Acad. Sci. USA* **85**, 1354-8
2. Javier, B.F. et al. (1988) *J. Biolumin. Chemilumin.* **2**, 121-8
3. Aiken, J.H. & Huie, C.W. (1991) *Anal. Lett.* **24**, 167-80

Cat.No.	Size
15230.01	100 g

**Bromelain from pineapple stem min. 0.2 DMC-U/mg powder**

(Stem bromelain)

EC 3.4.22.32 ♦ M<sub>r</sub> ca. 33 000 ♦ CAS [37189-34-7]



**DANGER**  
H315-H319-H334-H335 ♦ EG-Index 647-005-00-X ♦ EINECS 253-387-5 ♦ WGK 3L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Suitable for blood group serology (1) and degradation of proteins.

**Unit definition:** 1 DMC-U catalyzes the cleavage of 1 µmole peptide bond from dimethyl casein per minute at 25 °C, pH 7.0 expressed in terms of newly formed terminal amino groups (determined with TNBS) (2).

**Activity in other units:** 1200 GDU units/g (1 GDU unit yields the equivalent of 1 mg amino nitrogen from gelatin in 20 min at 45 °C, pH 4.5). 2400 FIP units/g (4).

References:

1. Gray, M.P. (1959) *J. Lab. Clin. Med.* **54**, 155-7
2. Lin, Y. et al. (1969) *J. Biol. Chem.* **244**, 789-93
3. Murach, T. (1976) *Methods Enzymol.* Vol. **45**, Acad. Press, New York, p. 475-85
4. Monod, J. (1966) *Pharm.* **4**, 343 (FIP-Method)

Cat.No.	Size
15250.01	25 g
15250.02	100 g
15250.03	500 g



### 5-Bromo-2'-deoxyuridine research grade

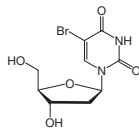
$C_9H_{11}BrN_2O_5$  ♦ M<sub>r</sub> 307.1 ♦ CAS [59-14-3]



WARNING

H351 ♦ EINECS 200-415-9 ♦ WGK 2 ♦  
HS 29349990

Storage temperature +2 °C to +8 °C



Thymidine analog used as a mutagen in genetic research. Selectively incorporated into cellular DNA during S-phase. It is used to measure DNA synthesis and to label dividing cells for the study of cell signaling and other processes that induce cell proliferation.

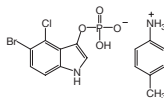
Purity (HPLC) min. 99.0 %

Cat.No.	Size
15240.02	1 g

### 5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt research grade

(BCIPT)

$C_8H_6NO_4BrClP \cdot C_7H_9N$  or  $C_{15}H_{15}BrClN_2O_4P$  ♦ M<sub>r</sub> 433.6  
♦ CAS [6578-06-9]



EINECS 229-506-1 ♦ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

**Stock solution:** 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.

**Staining solution for western blots:** 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl<sub>2</sub>, 100 mM Tris; pH 9.5).

Assay (HPLC) min. 99.0 %

**References:**

1. Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size
15247.03	500 mg

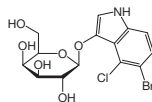
### 5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal) research grade

(X-Gal)

$C_{14}H_{16}BrClNO_6$  ♦ M<sub>r</sub> 408.6 ♦ CAS [7240-90-6]

EINECS 230-640-8 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C



X-Gal is a well known histochemical substrate used to detect the β-galactosidase enzyme (1, 2, 3, 4, 9, 10). Identification of lac<sup>c</sup>-colonies (8). X-gal is used to distinguish recombinant plasmids from parental vectors in cloning experiments using vectors containing the lacZ or lacZ [DMvP1](-)peptide gene (2, 3, 5). Upon hydrolysis, X-Gal yields a localized, insoluble blue precipitate making it exceptionally useful in blotting, immunocytochemical, and ELISA assays. X-Gal has been used for the detection of coliforms (*E. coli*) in municipal water supplies (6) and food products (7). X-Gal is often used in conjunction with IPTG (Isopropyl-β-D-thiogalactopyranoside, cat. no. 26600) which binds and inhibits the lac repressor thus inducing β-galactosidase activity.

**Stock solution:** 20 mg/ml in DMF. Store in aliquots at -20 °C in the dark. For detection of transformants, use in final concentration of 40 µg/ml.

Assay (HPLC) min. 99.0 %

**References:**

1. Maloy, S.R. (1990) Experimental Techniques in Bacterial Genetics, Jones and Bartlett (eds.), Boston, MA
2. Miller, J.H. (1992) A Short Course in Bacterial Genetic, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
3. Sambrook, J. et al. (1989) Molecular Cloning: A Laboratory Manual, 2nd. ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor (4.8, 4.22-4.23, 4.33, 4.37-4.38, 1.85-1.86, B.14)
4. Horowitz, J. et al. (1964) J. Med. Chem. **7**, 574
5. Brand, A. and Perrimon, N. (1993), Development **118**, 401
6. Ley, A. et al. (1993) Can. J. Microbio. **39**, 821
7. Feldsine, P.T. et al. (1993) J. AOAC Int. **76**, 5
8. Lojda, Z. et al. (1973) Histochemie **34**, 31-9
9. Lojda, Z. et al. (1979) in »Enzyme Histochemistry, A Laboratory Manual«, Springer-Verlag Berlin, Heidelberg, New York
10. Davies et al. (1980) Advanced Bacterial Genetics, Cold Spring Harbor, N.Y.

Cat.No.	Size
15243.06	250 mg
15243.03	1 g

### Bromophenol Blue-Na-salt

(3'-3''-5'-5''-Tetrabromophenol sulfonphthalein)

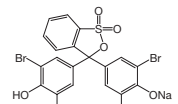
$C_{18}H_9Br_4O_2S \cdot Na$  ♦ M<sub>r</sub> 692.0 ♦ CAS [34725-61-6]

EINECS 252-170-2 ♦ WGK 2L ♦ HS 32049000

Tracking dye for electrophoresis; indicator pH 3.4 (yellow) - 4.6 (purple).

λ max. (0.001 % in water)

594 ± 4 nm



Cat.No.	Size
15375.01	5 g
15375.02	25 g

### BSA

see 11920 Albumin Bovine, page 7

### Buffer Kit for 2D HPE™ Gels

HS 38220000

Anode, cathode and equilibration buffer, cooling contact fluid and electrode wicks for all flatbed gels.

Cat.No.	Size
43312.01	1 kit

### Buffer Substance Dulbecco's

(PBS)

HS 38220000

Phosphate buffered saline, **without** calcium and magnesium; **without** phenol red; powder.

**References:**

1. Dulbecco, R. & Vogt, M. (1954) J. Exp. Med. **99**, 17-82
2. Hanks, J.H. & Wallace, R.E. (1949) Proc. Soc. Exp. Biol. Med. **71**, 196-200

Cat.No.	Size
47302.02	10 L
47302.03	50 L

### n-Butanol molecular biology grade

(1-Butanol)

$C_4H_{10}O$  ♦ M<sub>r</sub> 74.12 ♦ CAS [71-36-3]



DANGER

H226-H302-H315-H318-H335-H336 ♦ MAK/TRK  
310 mg/m<sup>3</sup>; 100 ml/m<sup>3</sup> ♦ EG-Index 603-004-00-6

GGVSE/ADR 3 III UN1120 ♦ IATA 3 III UN1120 ♦ EINECS 200-751-6 ♦  
WGK 1L ♦ HS 29051300

n-Butanol is used for the removal of ethidium bromide from DNA purified by CsCl gradient ultracentrifugation. It is also useful for the concentration of diluted nucleic acid solutions by repeated extractions.

Assay min. 99.0 %

**References:**

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.46, E16)
2. Ed. Ausubel et al., (2000) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), 7.6.5 Suppl.

Cat.No.	Size
39550.01	500 ml

### Cacodylic acid-Na-salt-3H<sub>2</sub>O research grade

(Sodium cacodylate)

$C_2H_6AsO_2 \cdot Na \cdot 3H_2O$  ♦ M<sub>r</sub> 214.0 ♦ CAS [6131-99-3]



DANGER

H301-H331-H410 ♦ EG-Index 033-002-00-5 ♦  
GGVSE/ADR 6.1 II UN1688 ♦ IATA 6.1 II UN1688 ♦

EINECS 204-708-2 ♦ WGK 3 ♦ HS 29319080

For buffers, especially for bactericidal buffers used in electron microscopy.

Assay (titr.) min. 98.0 %

Cat.No.	Size
15540.02	100 g
15540.03	500 g

**Calcium chloride pure, anhydrous**

CaCl<sub>2</sub> ♦ M<sub>r</sub> 110.99 ♦ CAS [10043-52-4]



WARNING  
H319 ♦ EG-Index 017-013-00-2 ♦ EINECS 233-140-8 ♦ WGK 1L ♦ HS 28272000

Economical drying agent for drying processes in laboratories like drying of liquids, neutral gases and a wide variety of solvents. It is as well a component of insect and plant cell culture media.

Assay (titr.) min. 98.0 %

Cat.No.	Size
15585.02	500 g

**Calcium hypochlorite research grade**

Ca(OCl)<sub>2</sub> ♦ M<sub>r</sub> 142.98 ♦ CAS [7778-54-3]



DANGER  
H272-H302-H314-H400 ♦ EG-Index 017-012-00-7 ♦ GGVSE/

ADR 5.1 II UN1748 ♦ IATA 5.1 II UN1748 ♦ EINECS 231-908-7 ♦ WGK 2 ♦ HS 28281000

Disinfectant, oxidant and chlorinating agent.

MP 100 °C  
d<sub>20</sub> °C 2.350  
Active chlorine min. 65.0 %

Cat.No.	Size
15591.02	500 g

**Canada balsam for microscopy**

CAS [8007-47-4]

EINECS 232-362-2 ♦ WGK 2L ♦ HS 13019000

Non-aqueous mounting medium for preparation of permanent slides for light microscopy. It is produced from the resin of the balsam fir tree.

Density (20 °C) 0.97 - 1.0  
Refractive index (20 °C) 1.520 - 1.525

Cat.No.	Size
26896.02	100 ml

**Carbenicillin-Na<sub>2</sub>-salt research grade**

(α-Carboxybenzylpenicillin-disodium salt)

C<sub>17</sub>H<sub>16</sub>N<sub>2</sub>O<sub>6</sub>S·Na<sub>2</sub> ♦ M<sub>r</sub> 422.37 ♦ CAS [4800-94-6]



DANGER  
H317-H334 ♦ EINECS 225-360-8 ♦ WGK 1 ♦ HS 29411000

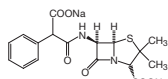
Storage temperature +2 °C to +8 °C

Semisynthetic derivative of benzylpenicillin G. Inhibitor of bacterial cell wall synthesis. Active above all against gram negative bacteria, less against gram positive. Used in molecular biology for selection of resistant strains (2). In plant cell culture often in combination with streptomycin or nystatin to prevent bacterial contamination (3,4). Effect on somatic embryo genesis (5).

**References:**

- Butler et al. (1970) J. Infec. Dis. **122**, Suppl. 81
- Sambrook, J. et al. (2001) A Laboratory Manual, 3rd ed., Cold Spring Harbor, NY
- Horsch, R.B. a. King, J. (1983) Plant Cell Tiss. Organ Cult. **2**, 21-8
- Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
- Sarma, K.S. Et al. (1995) . J. Exp. Bot. **46**, 1779-81

Cat.No.	Size
15875.03	5 g



**Carbonic anhydrase from bovine erythrocytes**

ca. 1.5 U/mg lyophil.

(Carbonate dehydratase; Carbonate hydrolyase)  
EC 4.2.1.1. ♦ M<sub>r</sub> ca. 29 000 ♦ CAS [9001-03-0]



DANGER  
H334 ♦ EINECS 232-576-6 ♦ WGK 1 ♦ HS 35079090  
Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Contains carbonic anhydrases A and B; both forms have similar high specific activities and therefore belong to the C-group of mammalian carbonic anhydrases (1).

**Unit definition:** 1 U catalyzes the hydrolysis of 1 μmole 4-nitrophenyl acetate per minute at 25 °C, pH 7.6 (2).

**Activity in other units:** ca. 4000 Wilbur-Anderson units/mg (3).

**References:**

- Lindskog, S. et al. (1971) The Enzymes (Boyer, P.D., ed.) **5**, 587-665
- Armstrong, J. McD. et al. (1966) J. Biol. Chem. **241**, 5137-49
- Wilbur, K.M. & Anderson, N.G. (1948) J. Biol. Chem. **176**, 147-54

Cat.No.	Size
15882.01	25 mg
15882.02	100 mg

**Carbopol® 934 pract.**

WGK 1L ♦ HS 39069090

A carboxyvinyl-polymer with a very high molecular weight. The powder supplied as the free acid is soluble in water up to 5 % and forms a solution of fairly low viscosity with pH ca. 3. Upon neutralization with sodium hydroxide a highly viscous gel is formed, even at a concentration of only 0.1 %. Tackifier, emulsion and suspension stabilizer. White, hygroscopic powder, physiologically harmless.

Carbopol = registered trademark of B.F. Goodrich Chemical Co.

Cat.No.	Size
15885.01	100 g
15885.02	500 g

**α-Carboxybenzylpenicillin-disodium salt**

see 15875 Carbenicillin-Na<sub>2</sub>-salt, page 22

**Carmine research grade**

(Natural Red 4; Aluminum calcium lake of the cochineal dye)  
C.I.75470 ♦ CAS [1390-65-4]

EINECS 215-724-4 ♦ WGK 1L ♦ HS 32030010

For application in Orth's lithium carmine staining and Schneider's acetocarmine staining.

Cat.No.	Size
16180.02	25 g

**Carrier Ampholytes**

see 42902 SERVALYT™ 2-4, page 121

**Casting gates for BlueMarine™ 100**

HS 90271090

Gel width 7 cm.

Cat.No.	Size
BM-100-3	2 pieces

**Casting gates for BlueMarine™ 200**

HS 90279050

Gel width 15 cm.

Cat.No.	Size
BM-200-3	2 pieces

### ■ Catalase from *Aspergillus niger* ca. 1800 U/mg

lyophil. salt-free

EC 1.11.1.6 ♦ M<sub>r</sub> ca. 240 000 ♦ CAS [9001-05-2]

DANGER

H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090  
Storage temperature -15 °C to -25 °C

Catalase is used for the removal of peroxides, the generation of oxygen and, in coupled systems, for the determination of metabolites e.g. uric acid (1). A very stable preparation particularly suitable for immobilization.

**Unit definition:** 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

**References:**

1. Bartl, K. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 7, p. 134-46
2. Aebi, H.E. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 3, p. 277-86

Cat.No.	Size
26905.01	100 mg

### ■ Catalase from bovine liver ca. 11 000 U/mg lyophil. salt-free

EC 1.11.1.6 ♦ M<sub>r</sub> ca. 240 000 ♦ CAS [9001-05-2]

DANGER

H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090  
Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Ca. 40 000 U/mg protein.

**Unit definition:** 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7.0. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

**References:**

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed) 3rd Ed. Vol. 2, p. 165-6

Cat.No.	Size
26910.01	250 mg
26910.02	1 g

### ■ Cathode Fluid 10 for IEF



DANGER

H314-H317-H334 ♦ GGVSE/ADR 8 III UN3267 ♦  
IATA 8 III UN3267 ♦ WGK 2 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.22 g L-arginine base, 0.18 g L-lysine base, 6.0 ml ethylene diamine in 50 ml water. Recommended for general use with SERVALYT™ PRECOTES™.

Cat.No.	Size
42986.03	50 ml

### ■ Celite™ 545 pract.

CAS [68855-54-9]



WARNING

H373 ♦ EINECS 272-489-0 ♦ WGK - ♦ HS 38029000

Purified and calcined, average particle size 0.02 - 0.08 mm.

Celite = registered trademark of Manville Corp.

Cat.No.	Size
16391.02	2 kg

### ■ Cellulase »Onozuka« R-10 from *Trichoderma viride* ca. 1 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦  
HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28302) (2).

**Temperature optimum:** 40 - 50 °C**pH-optimum:** pH 4 - 5

**Unit definition:** 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

**Extraneous activities:** α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 μmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

**References:**

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size
16419.02	2,5 g
16419.03	10 g
16419.05	50 g

### ■ Cellulase »Onozuka« RS from *Trichoderma viride* ca. 2 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦  
HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity (EC 3.2.1.4), it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Contains about three times as high xylanase activity as Cellulase Onozuka R-10 (cat. no. 16419). Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28302) (2).

**Temperature optimum:** 50 - 60 °C**pH-optimum:** pH 4 - 5

**Unit definition:** 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

**Extraneous activities:** Contains α-amylase, pectinase, protease and hemicellulase.

**References:**

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size
16420.01	1 g
16420.02	5 g

### ■ Cellulose microcrystalline ca. 0.02 mm research grade

(Avicel PH 105®; previously Avicel TG 104; Avicel SF)

CAS [9004-34-6]

EINECS 232-674-9 ♦ WGK - ♦ HS 39129090

Suitable for TLC, no binder required.

Avicel = registered trademark of FMC, Brussels.

Cat.No.	Size	EUR
14205.02	1 kg	55,00

**Cellulose microcrystalline ca. 0.05 mm**

research grade, Ph. Eur., USP/NF

(Avicel PH 101®; previously Avicel TG 101; Avicel PH) CAS [9004-34-6]

EINECS 232-674-9 ♦ HS 39129090

Avicel = registered trademark of FMC, Brussels.

Cat.No.	Size
14204.02	1 kg

**CentriPure MINI Spin Columns Desalt Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42130.01	4 columns

**CentriPure MINI Spin Columns Desalt Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42131.01	25 columns

**CentriPure MINI Spin Columns Desalt Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42132.01	100 columns

**CentriPure MINI Spin Columns Desalt Z-50**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl

Cat.No.	Size
42113.01	4 columns

**CentriPure MINI Spin Columns Desalt Z-50**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl

Cat.No.	Size
42114.01	25 columns

**CentriPure MINI Spin Columns Desalt Z-50**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into pure, deionized water.

*(Caution! Some proteins may precipitate in pure water with low ionic strength!)*

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42115.01	100 columns

**CentriPure MINI Spin Columns PBS Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42136.01	4 columns

**CentriPure MINI Spin Columns PBS Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42137.01	25 columns

**CentriPure MINI Spin Columns PBS Z-25**

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42138.01	100 columns

### CentriPure MINI Spin Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42127.01	4 columns

### CentriPure MINI Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42128.01	25 columns

### CentriPure MINI Spin Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42129.01	100 columns

### CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42133.01	4 columns

### CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42134.01	25 columns

### CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 5 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42135.01	100 columns

### CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42124.01	4 columns

### CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42125.01	25 columns

### CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient buffer exchange, removal of dyes and small molecules from proteins greater than 25 kDa with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size
42126.01	100 columns

### CentriPure P2 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins.

Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 200 µl can be purified with an elution volume of 200 to 350 µl.

Cat.No.	Size
42100.01	2 columns

### CentriPure P2 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins.

Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 200 µl can be purified with an elution volume of 200 to 350 µl.

Cat.No.	Size
42101.01	50 columns

### CentriPure P5 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins.

Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 0.5 ml can be purified with an elution volume of 1 ml.

Cat.No.	Size
42102.01	2 columns



■ **CentriPure P5 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 0.5 ml can be purified with an elution volume of 1 ml.

Cat.No.	Size
42103.01	50 columns

■ **CentriPure P10 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 1 ml can be purified with an elution volume of 1.2 to 1.5 ml.

Cat.No.	Size
42104.01	2 columns

■ **CentriPure P10 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 1 ml can be purified with an elution volume of 1.2 to 1.5 ml.

Cat.No.	Size
42105.01	50 columns

■ **CentriPure P25 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 2.5 ml can be purified with an elution volume of 2.7 to 3.5 ml.

Cat.No.	Size
42106.01	2 columns

■ **CentriPure P25 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 2.5 ml can be purified with an elution volume of 2.7 to 3.5 ml.

Cat.No.	Size
42107.01	25 columns

■ **CentriPure P50 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 5 ml can be purified with an elution volume of 6 to 8 ml.

Cat.No.	Size
42108.01	1 column

■ **CentriPure P50 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 5 ml can be purified with an elution volume of 6 to 8 ml.

Cat.No.	Size
42109.01	10 columns

■ **CentriPure P100 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 10 ml can be purified with an elution volume of 12 to 15 ml.

Cat.No.	Size
42110.01	1 column

■ **CentriPure P100 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 10 ml can be purified with an elution volume of 12 to 15 ml.

Cat.No.	Size
42111.01	10 columns

■ **CentriPure P500 Columns**

HS 38220000  
Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kDa in a sample volume of up to 50 ml can be purified with an elution volume of 65 to 70 ml.

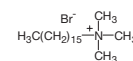
Cat.No.	Size
42112.01	1 column

□ **Cetrimide C16**

see 16530 Cetyltrimethylammonium-bromide, page 26

■ **Cetyltrimethylammonium-bromide** *cryst. pure*

(CTAB; Cetrimide C16; Cetrionium bromide; Hexadecyltrimethyl ammonium-bromide; Palmityltrimethyl-ammonium-bromide)



$\text{C}_{19}\text{H}_{42}\text{N}^+\text{Br}^-$  M, 364.46 ♦ CAS [57-09-0]



WARNING  
H302-H315-H319-H400-H410 ♦ GGVSE/ADR 9 III UN3077  
IATA 9 III UN3077 ♦ EINECS 200-311-3 ♦ WGK 3L ♦ HS 29239000

Cationic surfactant used instead of SDS in electrophoresis of highly charged and membrane protein subunits (1). Surfactant for modifying silica for HPLC (2). Suitable for cell permeabilization (3) and DNA isolation (4). Increases the efficiency of chemiluminescence (5, 6).

Assay (titr.) min. 99.0 %

**References:**

- Eley, M. et al. (1979) *Anal. Biochem.* **92**, 411-9
- Hansen, S.H. et al. (1981) *J. Chromatogr.* **210**, 453-60
- Joshi, M.S. et al. (1989) *Biotechnol. Lett.* **11**, 349-52
- Milligan, B.G. (1989) *Plant Mol. Biol. Rep.* **7**, 144-9
- Abdel-Latif, M.S. & Guibault, G.G. (1989) *Anal. Chim. Acta* **221**, 11-7
- Aiken, J.H. & Huie, C.W. (1991) *Anal. Lett.* **24**, 167-80

Cat.No.	Size
16530.04	100 g
16530.02	500 g

□ **CHAPS**

see 17038 3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate, page 27

## Chemiluminescence Reagent for Horseradish Peroxidase

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use substrate solution for chemiluminescence detection of membrane bound antigens or nucleic acid sequences directly with Horseradish Peroxidase (HRP) or indirectly with HRP-conjugated antibodies or Streptavidin labelled (1). Prior before use add 30 % hydrogen peroxide in a 1:1000 dilution (not provided) and use 100 µl/cm<sup>2</sup>.

- ◆ High resolution and sensitivity
- ◆ Short exposure time
- ◆ Document your results on film or with a chemiluminescence applicable gel documentation system.

### References:

1. Thorpe, G.H.G. and Kricka, L. J. (1986) *Methods Enzymol.* **133**, 331 – 353

Cat.No.	Size
42582.01	250 ml
42582.02	500 ml

## Chloramphenicol research grade, Ph. Eur.

(Chloromycetin; D-threo-2,2-dichloro-N-[β-hydroxy-α-(hydroxymethyl)-β-(4-nitrophenyl)ethyl]acetamide; D-threo-2-dichloroacetamido-1-(4-nitrophenyl)-1,3-propanediol)

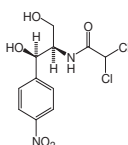
C<sub>11</sub>H<sub>12</sub>Cl<sub>2</sub>N<sub>2</sub>O<sub>5</sub> ◆ M<sub>r</sub> 323.1 ◆ CAS [56-75-7]



DANGER

H317-H334-H340-H350-H361d ◆

EINECS 200-287-4 ◆ WGK 3 ◆ HS 29414000



Blocks bacterial protein synthesis by inhibiting the peptidyl transferase activity of the 50S ribosomal subunit. Determination in serum by HPLC (1,2), in meat (3). Molecular basis for chloramphenicol resistance (5,6), effects on plants (7). Used for the selection of clones (8).

50 mg/ml in ethanol yield a clear, very faint yellow solution. For selection of chloramphenicol-resistant *Escherichia coli* a concentration of 30 - 50 µg/ml are typically used.

Assay (UV) 98.0 - 102.0 %

### References:

- Wal, J. et al. (1978) *J. Chromatogr.* **145**, 502-6
- Danzer, L.A. (1983) *Clin. Chem.* **29**, 856-8
- Rüssel, H. (1978) *Chromatographia* **11**, 341-3
- Long, K.S. & Porse, B.T. (2003) *Nucl. Acids Res.* **31**, 7208-15
- Izard, T. (2001) *Protein Sci.* **10**, 1508-13
- Schwarz, S. et al. (2004) *FEMS Microbiol. Rev.* **28**, 519-42
- Zhu, H. et al. (2011) *Int. J. Agric. Biol.* **13**, 677-82
- Munshi, T. et al. (2013) *PLOS ONE* **8**(3):e60143

Cat.No.	Size
16785.03	25 g
16785.02	100 g

## Chloroform molecular biology grade

(Trichloromethane)

CHCl<sub>3</sub> ◆ M<sub>r</sub> 119.4 ◆ CAS [67-66-3]

WARNING

H302-H315-H319-H331-H351-H361d-H372 ◆ Carc. 2 ◆

MAK/TRK 2.5 mg/m<sup>3</sup>; 0.5 ml/m<sup>3</sup> ◆ EG-Index 602-006-00-4

GGVSE/ADR 6.1 III UN1888 ◆ IATA 6.1 III UN1888 ◆ EINECS 200-663-8 ◆ WGK 3L ◆ HS 29031300

Suitable for nucleic acid purification and for removal of traces of phenol from aqueous DNA and RNA samples.

Assay (GC) 99.9 - 100.0 %  
 Density (20 °C) 1.478 - 1.482  
 Water max. 0.05 %  
 Acidity max. 0.001 %  
 Residue on evaporation (w/w %) max. 0.0005 %

Cat.No.	Size
39553.01	250 ml

## Chloroform analytical grade

(Trichloromethane)

CHCl<sub>3</sub> ◆ M<sub>r</sub> 119.4 ◆ CAS [67-66-3]

DANGER

H302-H315-H319-H331-H351-H361d-H372 ◆ EG-Index 602-006-00-4 ◆ GGVSE/ADR 6.1 III UN1888 ◆

IATA 6.1 III UN1888 ◆ EINECS 200-663-8 ◆ WGK 3L ◆ HS 29031300

Widely used solvent in biochemical and molecular biology applications, suitable in combination with methanol for protein precipitation according to Wessel & Flügge (1).

Assay (GC) 99.9 - 100.0 %  
 Density (20 °C) 1.478 - 1.482  
 Water max. 0.05 %  
 Acidity max. 0.001 %  
 Residue on evaporation (w/w %) max. 0.0005 %

### References:

1. Wessel, D Flügge, U.I. (1984) *Anal. Biochem.* **138**, 141-43

Cat.No.	Size
45627.03	1 L

## Chloroform:Isoamyl alcohol 24:1 molecular biology grade



WARNING

H302-H315-H335-H351-H373 ◆ GGVSE/

ADR 6.1 III UN2810 ◆ IATA 6.1 III UN2810 ◆ WGK 3 ◆

HS 38220000

DNase, RNase, Proteases not detected. Mixture of chloroform and isoamyl alcohol (ratio 24:1). Bottled under inert gas. Suitable for nucleic acid purification. Improves efficiency of nucleic acid extraction.

### Assay

Chloroform (cat. no. 39553) min. 99.9 %  
 Isoamyl alcohol (cat. no. 39557) min. 99.0 %

### References:

1. Sambrook, Fritsch, Maniatis (1989) *Molecular Cloning*, Cold Spring Harbor Laboratory Press (E.3-E.4)

Cat.No.	Size
39554.02	500 ml

## Chloromycetin

see 16785 Chloramphenicol, page 27

## 3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate research grade

(CHAPS)

C<sub>32</sub>H<sub>58</sub>N<sub>2</sub>O<sub>7</sub>S ◆ M<sub>r</sub> 614.9 ◆ CAS [75621-03-3]

WARNING

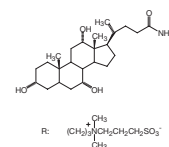
H315-H319-H335 ◆ WGK 1 ◆ HS 29239000

Zwitterionic surfactant. Particularly useful for solubilizing and electrophoresis of membrane proteins (1 - 5). Suitable also for enzyme immunoassay (6).

Assay (from HPLC) min. 97.0 %

### References:

- Hjelmeland, L.M. (1980) *Proc. Natl. Acad. Sci. USA* **77**, 6368-70
- Naldini, L. et al. (1990) *Biochemistry* **29**, 5153-60
- Kierdaszuk, B. & Eriksson, S. (1990) *Biochemistry* **29**, 4109-114
- Bonfils, C. & Combalbert, J. (1990) *Electrophoresis* **11**, 182-6
- Ambar, J. et al. (1989) *Eur. J. Pharmacol.* **170**, 119-20
- Leblond, F.A. et al. (1989) *J. Immunol. Methods* **124**, 71-5



Cat.No.	Size
17038.02	5 g
17038.03	25 g
17038.04	100 g



**Cholic acid-Na-salt** analytical grade

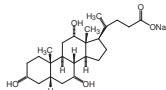
(Sodium cholate)

$C_{24}H_{39}O_5 \cdot Na$   $\diamond$  M<sub>r</sub> 430.5  $\diamond$  CAS [361-09-1]

EINECS 206-643-5  $\diamond$  WGK 1  $\diamond$  HS 29181930

Important surfactant in membrane chemistry. Excellent solubilizer for receptors, pigments and phospholipids.

Assay (titr.) min. 98.0



**References:**

- Helenius, A. et al. (1979) *Methods Enzymol.* **56**, 734-49
- Lopez-Corcuera, B. & Aragon, C. (1989) *Eur. J. Biochem.* **181**, 519-24
- Kavanaugh, M.P. et al. (1989) *J. Neurochem.* **53**, 1575-80
- Malloy, R.C. & Binford, J.S. Jr. (1990) *J. Phys. Chem.* **94**, 337-45

Cat.No.	Size
17126.03	500 g

**Chromotrope FB**

see 14410 Azorubin, page 14

**Ciprofloxacin Hydrochloride** research grade

CAS [86393-32-0]



WARNING

H319-H412  $\diamond$  WGK 2  $\diamond$  HS 29419000

Storage temperature +2 °C to +8 °C

Ciprofloxacin HCl is a second generation fluoroquinolone antibiotic. Fluoroquinolone antibiotics target bacterial DNA gyrase, an enzyme which reduces DNA strain during replication. Because DNA gyrase is required during DNA replication, subsequent DNA synthesis and cell division is inhibited.

Ciprofloxacin is a broad spectrum antibiotic targeting a wide variety of gram positive and gram negative bacteria. Many mycoplasma strains, inclusive *A. laidlawii*, *M. orale*, *M. hyorhinis*, *M. fermentas*, and *M. arginine*, react sensitive to ciprofloxacin. Since these strains are responsible for most of the contaminations in cell culture, it can be used for removal of mycoplasma contamination. At the recommended concentration of ca. 1 µg/ml no cytotoxic effects occur.

Ciprofloxacin HCl is freely soluble at 35 mg/ml.

Content (dry substance) 98.0 - 102.0 %

pH 3.5 - 4.5

**References:**

- Wolfson, John S., & Hooper D. C. (1985) *Am. Soc. for Microbiol.* 4th ser. **28**, 581 - 86

Cat.No.	Size
47977.01	5 g

**Citric acid-H<sub>2</sub>O** analytical grade

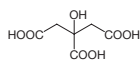
$C_6H_8O_7 \cdot H_2O$   $\diamond$  M<sub>r</sub> 210.1  $\diamond$  CAS [5949-29-1]



WARNING

H319  $\diamond$  EINECS 201-069-1  $\diamond$  WGK 1  $\diamond$

HS 29181400



Used to prepare citrate buffer for antigen retrieval of tissue samples. The citrate solution is designed to break protein cross-links, thus unmasking antigens and epitopes in formalin-fixed and paraffin embedded tissue sections, and resulting in enhanced staining intensity of antibodies. It has an anticoagulant activity and forms as a calcium chelator complexes that disrupt the tendency of blood to clot.

Assay (hydrate) 99.5 - 101.0 %

Cat.No.	Size
38640.01	500 g
38640.02	1 kg

**Citric acid-Na<sub>3</sub>-salt-2H<sub>2</sub>O** analytical grade, Ph. Eur.

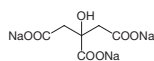
(tri-Sodium citrate)

$C_6H_5O_7 \cdot Na_3 \cdot 2H_2O$   $\diamond$  M<sub>r</sub> 294.1  $\diamond$  CAS [6132-04-3]

EINECS 200-675-3  $\diamond$  WGK 1L  $\diamond$  HS 29181500

Buffering agent, resisting changes in pH. Due to its chelating effect and stabilization of nucleic acids, it is used for preparation of sodium citrate buffer for use in SSC solution and other buffers for molecular biology.

Assay (titr.) 99.0 - 101.0 %



Cat.No.	Size
38642.02	1 kg

**CleanGel IEF for PhastSystem™** Size: 50 x 42 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

Rehydratable film supported polyacrylamide mini gel for IEF on PhastSystem™.

Cat.No.	Size
43350.01	20 gels

**Cleland's reagent**

see 20711 Dithiothreitol, page 36

**Cleland's reagent**

see 20710 Dithiothreitol, page 36

**Cleland's reagent**

see 20697 Dithioerythritol, page 36

**Colcemid**

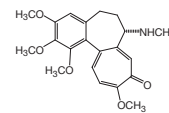
see 18238 Demecolcine, page 33

**Colcemid™ solution 10 µg/ml** sterile filtered

(Demecolcine solution)

HS 38220000

Storage temperature -15 °C to -25 °C



Colchicine inhibits microtubule polymerization by binding to tubulin, which disrupts spindle formation during mitosis. Since increased rate of mitosis is associated with cancer cell proliferation, blocking microtubule function with colchicine has been used as an approach to anti-cancer therapy. Its mitosis-inhibiting function is also utilized to perform karyotypes in genetic studies.

Colchicine blocks chromosome segregation during meiosis. Therefore it is used to induce polyploidy (tetraploid) in plant cells.

Cat.No.	Size
47253.01	25 ml

**Colchicine cryst. research grade, USP**

$C_{22}H_{25}NO_6$   $\diamond$  M<sub>r</sub> 399.44  $\diamond$  CAS [64-86-8]

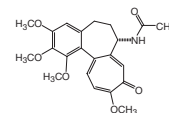


DANGER

H300-H340  $\diamond$  Muta. 1B  $\diamond$  EG-Index 614-005-00-6  $\diamond$  GGVSE/

ADR 6.1 I UN1544  $\diamond$  IATA 6.1 I UN1544  $\diamond$

EINECS 200-598-5  $\diamond$  WGK 3L  $\diamond$  HS 29399900



Colchicine inhibits microtubule polymerization by binding to tubulin, which disrupts spindle formation during mitosis. Since increased rate of mitosis is associated with cancer cell proliferation, blocking microtubule function with colchicine has been used as an approach to anti-cancer therapy. Its mitosis-inhibiting function is also utilized to perform karyotypes in genetic studies. Colchicine blocks chromosome segregation during meiosis. Therefore it is used to induce polyploidy (tetraploid) in plant cells.

Assay (HPLC) 94.0 - 101.0 %

Cat.No.	Size
77120.01	250 mg
77120.02	1 g
77120.03	5 g

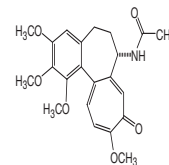
**Colchicine solution 10 µg/ml** sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

In PBS.

Colchicine inhibits microtubule polymerization by binding to tubulin, which disrupts spindle formation during mitosis. Since increased rate of mitosis is associated with cancer cell proliferation, blocking microtubule function with colchicine has been used as an approach to anti-cancer therapy. Its mitosis-inhibiting function is also utilized to perform karyotypes in genetic studies. Colchicine blocks chromosome segregation during meiosis. Therefore it is used to induce polyploidy (tetraploid) in plant cells.



Cat.No.	Size
47252.01	25 ml

### Collagen R solution 0.2 % sterile

M<sub>r</sub> ca. 300 000

HS 35040090

Storage temperature +2 °C to +8 °C

Type I rat tail collagen; 2 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

#### References:

1. Strom, S.C. & Michalopoulos, G. (1982) *Methods Enzymol.* **82**, 544-55
2. Miller, E.J. (1976) *Mol. Cell. Biochem.* **13**, 165-91

Cat.No.	Size
47254.01	20 ml
47254.02	100 ml

### Collagen R solution 0.4 % sterile

M<sub>r</sub> ca. 300 000

HS 38220000

Storage temperature +2 °C to +8 °C

Type I rat tail collagen; 4 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

#### References:

1. Strom, S.C. & Michalopoulos, G. (1982) *Methods Enzymol.* **82**, 544-55
2. Miller, E.J. (1976) *Mol. Cell. Biochem.* **13**, 165-91

Cat.No.	Size
47256.01	20 ml

### Collagenase substrate per E. Wünsch

(4-Phenylazobenzoyloxycarbonyl-Pro-Leu-Gly-Pro-D-Arg)

C<sub>38</sub>H<sub>52</sub>N<sub>10</sub>O<sub>8</sub> ♦ M<sub>r</sub> 776.9 ♦ CAS [17011-78-8]

EINECS 241-086-1 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

Collagenase catalyzes the hydrolysis of the chromo-peptide Phenylazobenzoyloxycarbonyl-Pro-Leu-Gly-Pro-D-Arg. The resulting fragment Phenylazobenzoyloxycarbonyl-Pro-Leu can be spectrophotometrically detected.

Purity (HPLC) > 97.0 %

#### References:

1. Wünsch, E. & Heidrich, H.G. (1963) *Hoppe-Seyler's Z. Physiol. Chem.* **333**, 149-51
2. Evans, C.H. (1981) *Biochem. J.* **195**, 677-84
3. Strauch, L. & Vencelj, H. (1967) *Hoppe-Seyler's Z. Physiol. Chem.* **348**, 465-8
4. Reil-Dlouha, V. et al. (1976) *J. Mol. Biol.* **107**, 293-305
5. Nagelschmidt, M. et al. (1979) *Biochem. Biophys. Acta* **571**, 105-11

Cat.No.	Size
52268.02	50 mg

### Comb 1.0 mm, 10 wells, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

Cat.No.	Size
BV-10-1.0	1 piece

### Comb 1.0 mm, 12 wells, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

Cat.No.	Size
BV-12-1.0	1 piece

### Comb 1.0 mm, 15 wells, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

Cat.No.	Size
BV-15-1.0	1 piece

### Comb 1.5 mm, 10 wells, for BlueVertical™ PRiME™ Casting Stand

HS 39269097

Cat.No.	Size
BV-10-1.5	1 piece

### Comb 1.5 mm, 12 wells, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

Cat.No.	Size	EUR
BV-12-1.5	1 piece	44,00

### Comb 1.5 mm, 15 Wells, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

Cat.No.	Size
BV-15-1.5	1 piece

### Comb 0.75 mm, 15 wells, for BM-100 (Gel width 7 cm)

HS 39269097

Number of wells: 15  
 Thickness of comb (mm): 0.75  
 Width of well (mm): 6  
 Depth of well (mm): 10  
 Sample volume (µl) 14

Cat.No.	Size
BM-100-15-0.75	1 piece

### Comb 1.0 mm, 10 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells: 10  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 12  
 Depth of well (mm): 10  
 Sample volume (µl) 35

Cat.No.	Size
BM-200-10-1.0	1 piece

### Comb 1.0 mm, 12 wells, for BM-100 (Gel width 7 cm)

HS 39269097

Number of wells: 12  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 3.7  
 Depth of well (mm): 10  
 Sample volume (µl) 10

Cat.No.	Size
BM-100-12-1.0	1 piece

### Comb 1.0 mm, 16 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells: 16  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 7  
 Depth of well (mm): 10  
 Sample volume (µl) 20

Cat.No.	Size
BM-200-16-1.0	1 piece

### Comb 1.0 mm, 20 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells: 20  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 5  
 Depth of well (mm): 10  
 Sample volume (µl) 15

Cat.No.	Size
BM-200-20-1.0	1 piece

■ **Comb 1.0 mm, 26 wells-MC, for BM-200 (Gel width 15 cm)**

HS 39269097

Multichannel-pipette comb

Number of wells: 26  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 4  
 Depth of well (mm): 10  
 Sample volume (µl) 12

Cat.No.	Size
BM-200-M26-1.0	1 piece

■ **Comb 1.0 mm, 26 wells, for BM-200 (Gel width 15 cm)**

HS 39269097

Number of wells: 26  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 4  
 Depth of well (mm): 10  
 Sample volume (µl) 12

Cat.No.	Size
BM-200-26-1.0	1 piece

■ **Comb 1.0 mm, 31 wells-MC, for BM-200 (Gel width 15 cm)**

HS 39269097

Multichannel-pipette comb

Number of wells: 31  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 3  
 Depth of well (mm): 10  
 Sample volume (µl) 9

Cat.No.	Size
BM-200-M31-1.0	1 piece

■ **Comb 1.0 mm, 8 wells, for BM-100 (Gel width 7 cm)**

HS 39269097

Number of wells: 8  
 Thickness of comb (mm): 1.0  
 Width of well (mm): 6.0  
 Depth of well (mm): 10  
 Sample volume (µl) 18

Cat.No.	Size
BM-100-8-1.0	1 piece

■ **Comb 1.5 mm, 10 wells, for BM-200 (Gel width 15 cm)**

HS 39269097

Number of wells: 10  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 12  
 Depth of well (mm): 10  
 Sample volume (µl) 52

Cat.No.	Size
BM-200-10-1.5	1 piece

■ **Comb 1.5 mm, 12 wells, für BM-100 (Gel width 7 cm)**

HS 39269097

Number of wells: 12  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 3.7  
 Depth of well (mm): 10  
 Sample volume (µl) 17

Cat.No.	Size
BM-100-12-1.5	1 piece

■ **Comb 1.5 mm, 14 wells, for BM-100 (Gel width 7 cm)**

HS 39269097

Number of wells: 14  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 3.0  
 Depth of well (mm): 10  
 Sample volume (µl) 14

Cat.No.	Size
BM-100-14-1.5	1 piece

■ **Comb 1.5 mm, 16 wells, for BM-200 (Gel width 15 cm)**

HS 39269097

Number of wells: 16  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 7  
 Depth of well (mm): 10  
 Sample volume (µl) 30

Cat.No.	Size
BM-200-16-1.5	1 piece

■ **Comb 1.5 mm, 20 wells, for BM-200 (Gel width 15 cm)**

HS 39269097

Number of wells: 20  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 5  
 Depth of well (mm): 10  
 Sample volume (µl) 20

Cat.No.	Size
BM-200-20-1.5	1 piece

■ **Comb 1.5 mm, 26 wells-MC, for BM-200 (Gel width 15 cm)**

HS 39269097

Multichannel-pipette comb

Number of wells: 26  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 4  
 Depth of well (mm): 10  
 Sample volume (µl) 18

Cat.No.	Size
BM-200-M26-1.5	1 piece

■ **Comb 1.5 mm, 26 wells, for BM-200 (Gel width 15 cm)**

HS 39269097

Number of wells: 26  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 4  
 Depth of well (mm): 10  
 Sample volume (µl) 18

Cat.No.	Size
BM-200-26-1.5	1 piece

■ **Comb 1.5 mm, 8 wells, for BM-100 (Gel width 7 cm)**

HS 39269097

Number of wells: 8  
 Thickness of comb (mm): 1.5  
 Width of well (mm): 6.0  
 Depth of well (mm): 10  
 Sample volume (µl) 28

Cat.No.	Size
BM-100-8-1.5	1 piece

### ■ Comb 2.0 mm, 10 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells:	10
Thickness of comb (mm):	2.0
Width of well (mm):	12
Depth of well (mm):	10
Sample volume (µl)	70

Cat.No.	Size
BM-200-10-2.0	1 piece

### ■ Comb 2.0 mm, 12 wells, für BM-100 (Gel width 7 cm)

HS 39269097

Number of wells:	12
Thickness of comb (mm):	2.0
Width of well (mm):	3.7
Depth of well (mm):	10
Sample volume (µl)	20

Cat.No.	Size
BM-100-12-2.0	1 piece

### ■ Comb 2.0 mm, 14 wells, for BM-100 (Gel width 7 cm)

HS 39269097

Number of wells:	14
Thickness of comb (mm):	2.0
Width of well (mm):	3.0
Depth of well (mm):	10
Sample volume (µl)	9

Cat.No.	Size
BM-100-14-2.0	1 piece

### ■ Comb 2.0 mm, 16 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells:	16
Thickness of comb (mm):	2.0
Width of well (mm):	7
Depth of well (mm):	10
Sample volume (µl)	40

Cat.No.	Size
BM-200-16-2.0	1 piece

### ■ Comb 2.0 mm, 20 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells:	20
Thickness of comb (mm):	2.0
Width of well (mm):	5
Depth of well (mm):	10
Sample volume (µl)	25

Cat.No.	Size
BM-200-20-2.0	1 piece

### ■ Comb 2.0 mm, 26 wells-MC, for BM-200 (Gel width 15 cm)

HS 39269097

Multichannel-pipette comb

Number of wells:	26
Thickness of comb (mm):	2.0
Width of well (mm):	4
Depth of well (mm):	10
Sample Volume (µl)	24

Cat.No.	Size
BM-200-M26-2.0	1 piece

### ■ Comb 2.0 mm, 26 wells, for BM-200 (Gel width 15 cm)

HS 39269097

Number of wells:	26
Thickness of comb (mm):	2.0
Width of well (mm):	4
Depth of well (mm):	10
Sample volume (µl)	24

Cat.No.	Size
BM-200-26-2.0	1 piece

### ■ Congo Red research grade

(Direct Red 28)

C.I. 22120 ♦ C<sub>20</sub>H<sub>22</sub>N<sub>6</sub>O<sub>6</sub>S<sub>2</sub>·Na<sub>2</sub> ♦ M<sub>r</sub> 696.7 ♦

CAS [573-58-0]

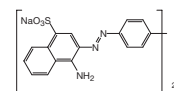


DANGER

H350-H361d ♦ Carc. 1B, Repr. 2 ♦ EG-Index 611-027-00-8 ♦

GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦ EINECS 209-358-4 ♦ WGK 2L ♦ HS 32049000

Tested for use in histology. Indicator pH 3.0 - 5.2 blue-reddish orange.



Cat.No.	Size
27215.01	25 g

### ■ Cooling Contact Fluid

HS 90272000

Storage temperature +2 °C to +8 °C

Cooling fluid specially formulated for use in horizontal electrophoresis.

Sufficient for running 10 (50 ml) or 30 (150 ml) large format gels or 25 (50 ml) or 75 (150 ml) small format gels.

Cat.No.	Size
43371.01	50 ml
43371.02	3 x 50 ml

### ■ Coomassie® Brilliant Blue G 250

C.I. 42655 ♦ C<sub>47</sub>H<sub>46</sub>N<sub>3</sub>O<sub>7</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 854.0 ♦

CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue G (cat. no. 35050).

λmax. (0.001 %, pH 7)

585 ± 5 nm

A 1 cm/λmax./1 % pH 7

ca. 500

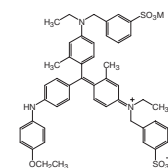
Water

max. 10.0 %

TLC

corresponds

Coomassie = registered trademark of ICI Ltd.



Cat.No.	Size
17524.01	25 g
17524.02	100 g

### ■ Coomassie® Brilliant Blue R 250

C.I. 42660 ♦ C<sub>45</sub>H<sub>44</sub>N<sub>3</sub>O<sub>7</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 826.0 ♦

CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue R (cat. no. 35051).

Assay (UV)

min. 75.0 %

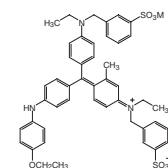
Water (KF)

max. 10.0 %

TLC

corresponds

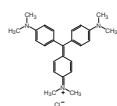
Coomassie = registered trademark of ICI Ltd.



Cat.No.	Size
17525.01	25 g
17525.02	100 g

**Crystal Violet** research grade

(Basic Violet 3; Hexamethylpararosaniline-HCl; Gentian Violet 10B; Methyl Violet 10B)  
 C.I.42555 ♦ C<sub>25</sub>H<sub>30</sub>ClN<sub>3</sub> ♦ M<sub>r</sub> 408.0 ♦ CAS [548-62-9]



DANGER

H302-H318-H351-H410 ♦ Carc. 2 ♦

EG-Index 612-204-00-2 ♦ GGVS/ADR 9 III UN3077 ♦ IATA 9 III UN3077 ♦  
 EINECS 208-953-6 ♦ WGK 3 ♦ HS 32049000

This dye is chemically homogeneous and well-defined, particularly recommended for Flemming and gram staining because of reproducible results. Commercial preparations usually contain components of reddish tinge like methyl violet 2B. Indicator pH 0.0 - 1.8.

λ max. 580 - 600 nm  
 A 1 cm/λ max. (0.0001 % in water) min. 0.13

Cat.No.	Size
27335.01	25 g

**CSF Analysis Kit for PhastSystem™**

HS 38220000  
 Storage temperature -15 °C to -25 °C

Format 50 x 42 x 0.43 mm.  
 Contains 10 rehydratable, film supported mini horizontal polyacrylamide gels for CSF analysis on PhastSystem™.

Cat.No.
43393.01

**CTAB**

see 16530 Cetyltrimethylammonium-bromide, page 26

**CTAB DNA Extraction Buffer** molecular biology grade

HS 38220000

Cetyltrimethylammonium-bromide (CTAB) is a non-ionic detergent, which forms insoluble complexes with nucleic acids if the sodium chloride concentration in the solution is around 0.5 M. Polysaccharides, phenolic components and other enzyme-inhibiting impurities from lysates of plant cells can be effectively removed with the CTAB lysis buffer (1).  
 Contains 2 % CTAB, 20 mM EDTA-Na<sub>2</sub>·2H<sub>2</sub>O, 1.4 mM NaCl and 100 mM Tris, pH 8.

**References:**

1. Ed. Ausubel et al., (2001) Current Protocols in Molecular Biology, Greene Publishing & Wiley-Interscience Inc. (New York, NY), Suppl. **45**, 2.3.5

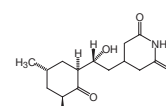
Cat.No.	Size
39809.01	500 ml

**Cyanocobalamin**

see 38310 Vitamin B<sub>12</sub>, page 147

**Cycloheximide** cryst. pure

(Actidione®; β-[2-(3,5-Dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-glutarimide)  
 C<sub>15</sub>H<sub>23</sub>NO<sub>4</sub> ♦ M<sub>r</sub> 281.4 ♦ CAS [66-81-9]



DANGER

H300-H341-H360D-H411  
 ♦ Muta. 2, Repr. 1B ♦

EG-Index 613-140-00-8 ♦ GGVS/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦  
 EINECS 200-636-0 ♦ WGK 3L ♦ HS 29419000  
 Storage temperature +2 °C to +8 °C

Glutarimide antibiotic isolated from *Streptomyces griseus*; active against fungi and yeasts, but not against bacteria. Inhibits eukaryotic protein synthesis by blocking the translocation step in the elongation cycle (1,3,8). Blocks translation of mRNA on cytosolic but not on mitochondrial or chloroplast ribosomes (2,4,6).

Assay (HPLC) min. 90.0 %  
 MP 98 - 112 °C

Actidione = registered trademark of Upjohn.

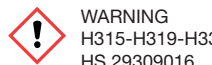
**References:**

- McKeehan, W. & Hardesty, B. (1969) Biochem. Biophys. Res. Commun. **36**, 625-30
- Neupert, W. et al. (1969) Eur. J. Biochem. **10**, 589-91
- Obrig, T.G. et al. (1971) J. Biol. Chem. **246**, 174-81
- Avadhani, N.G. & Buetow, D.E. (1972) Biochem. J. **128**, 353-65
- Jilek, F. et al. (2000) Animal Reprod. Sci. **63**, 101-11
- Hanten, J.J. & Pierce, S.K. (2001) Biol. Bull. **201**, 34-44
- Jin, S. et al. (2008) Am. J. Physiol. **294**, G928-37
- Schneider-Poetsch, T. et al. (2010) Nat. Chem. Biol. **6**, 209-17

Cat.No.	Size
10700.04	1 g
10700.02	5 g
10700.03	25 g

**L-Cysteine-HCl-H<sub>2</sub>O** cryst. research grade, Ph. Eur., USP

(Cys-HCl; L-2-Amino-d-mercaptopropionic acid hydrochloride)  
 C<sub>3</sub>H<sub>7</sub>NO<sub>2</sub>S-HCl-H<sub>2</sub>O ♦ M<sub>r</sub> 175.6 ♦ CAS [7048-04-6]



WARNING

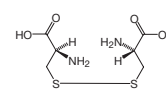
H315-H319-H335 ♦ EINECS 200-157-7 ♦ WGK 1L ♦  
 HS 29309016

Assay (titr.) 98.5 - 101.0 %

Cat.No.	Size
17769.01	25 g
17769.02	100 g
17769.03	250 g
17769.04	1 kg

**L-Cystine** research grade, Ph. Eur.

((Cys)<sub>2</sub>; L(-)-3,3'-Dithiobis(2-aminopropanoic acid))  
 C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>O<sub>4</sub>S<sub>2</sub> ♦ M<sub>r</sub> 240.3 ♦ CAS [56-89-3]



EINECS 200-296-3 ♦ WGK - ♦ HS 29309013

Assay (titr.) 98.5 - 101.0 %  
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
17880.02	250 g

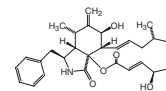
**Cytochalasin B**

C<sub>29</sub>H<sub>37</sub>NO<sub>5</sub> ♦ M<sub>r</sub> 479.6 ♦ CAS [14930-96-2]



DANGER

H300-H310-H330-H361d ♦  
 GGVS/ADR 6.1 II UN2811 ♦



IATA 6.1 II UN2811 ♦ EINECS 239-000-2 ♦ WGK 2 ♦ HS 29339980  
 Storage temperature +2 °C to +8 °C

From *Drechslera dematoides*. Reversible inhibitor of cell motion (1). Inhibits phagocytosis (2). Induces polyploidy (3). Induces nuclear extrusion (4, 5).

Assay (HPLC) > 98.0 %  
 Assay (TLC) > 98.0 %

**References:**

- Becker, E. et al. (1972) J. Immunol. **108**, 396-401
- Davis, A. et al. (1971) Proc. Soc. Exp. Biol. Med. **137**, 161-7
- Hoehn, H. et al. (1972) Fed. Proc. **31**, A 607-8
- Krishan, A. (1972) J. Cell Biol. **54**, 657-62
- Prescott, D. (1972) Exp. Cell Res. **71**, 480-3

Cat.No.	Size
18015.01	1 mg
18015.02	5 mg



### ■ D.E.R.<sup>®</sup> 736 pract.

(ERL-4206 plasticizer)  
CAS [9072-62-2]



WARNING  
H319 ♦ WGK 1L ♦ HS 39073000

Shorter chain than D.E.R.<sup>®</sup> 732, lower viscosity, gives less flexible blocks. Epoxy equivalent weight 175 - 205; viscosity 0.03 - 0.06 Pa·s at 25 °C.

Used in electron microscopy.

Density 1.129 - 1.150

D.E.R. is a registered trademark of Dow Chemical Company, USA.

#### References:

1. Kushida, H. (1966) J. Electron. Microsc. **16**, 278-80

Cat.No.	Size
18247.01	100 ml

### □ DAB

see 18865 3,3'-Diaminobenzidine-4HCl·xH<sub>2</sub>O, page 34

### □ Dactinomycin

see 10710 Actinomycin D, page 4

### □ DAPI

see 18860 4',6-Diamidino-2-phenylindole-2HCl, page 34

### □ DDSA

see 20755 2-Dodecenylsuccinic acid anhydride, page 37

### ■ Decal pract.



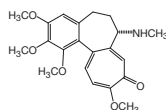
WARNING  
H315-H319-H335 ♦ GGVSE/ADR 8 III UN1789 ♦ IATA 8 III UN1789 ♦ WGK 1 ♦ HS 38220000

For the rapid decalcification of histological sections. Contains max. 9.5 % hydrochloric acid and a catalytic calcium ion-chelating agent.

Cat.No.	Size
18140.02	500 ml

### ■ Demecolcine research grade

(Colcemid; N-Deacetyl-N-methylcolchicine)  
C<sub>21</sub>H<sub>25</sub>NO<sub>5</sub> ♦ M<sub>r</sub> 371.42 ♦ CAS [477-30-5]



DANGER  
H300-H330 ♦ GGVSE/ADR 6.1 II UN1544 ♦ IATA 6.1 II UN1544 ♦ EINECS 207-514-6 ♦

WGK 3L ♦ HS 29399900

Storage Temperature: +15 °C to +30 °C

Demecolcine depolymerizes microtubules and limits microtubule formation. It inactivates spindle fiber mechanism during metaphase, systematically immobilizing chromosomes at the metaphase plate. Induces apoptosis by blocking mitosis in HeLa S3 cells. The mechanism of action is similar to that of colchicine, but with lower mammalian toxicity.

Assay (HPLC) min. 97.0 %

Colcemid = registered trademark of Ciba-Geigy.

Cat.No.	Size
18238.03	25 mg

### □ Demecolcine solution

see 47253 Colcemid™ solution 10 µg/ml, page 28

### ■ Denhardt's solution, 50x concentrate molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C \*\*

DNase/RNase not detected.

Suitable for nucleic acid hybridization. Denhardt's solution is a mixture of blocking agents capable of saturating non-specific binding sites and to be used in membrane-based hybridization protocols. It is recommended for use with nylon membranes.

#### Composition:

Albumin Fraction V	0.1 g/10 ml
Polyvinylpyrrolidone	0.1 g/10 ml
Ficoll <sup>®</sup> 400	0.1 g/10 ml

#### References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (9.48-50, B.15)  
2. Denhardt, D.T., (1966) Biochem. Biophys. Res. Commun. **23**(5), 641-646

Cat.No.	Size
39603.01	10 ml

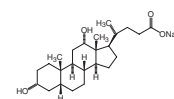
### ■ Deoxycholic acid-Na-salt pure

(Sodium deoxycholate)

C<sub>24</sub>H<sub>39</sub>O<sub>4</sub>·Na ♦ M<sub>r</sub> 414.6 ♦ CAS [302-95-4]



WARNING  
H302 ♦ EINECS 206-132-7 ♦ WGK 1 ♦ HS 29181930



For bacteriology and enzymology. Suitable for solubilization of many membrane proteins and phospholipids.

Assay	min. 98.0 %
Loss on drying	max. 5.0 %
Heavy metals (Pb)	max. 20 ppm

#### References:

1. McKernan, R.M. et al. (1989) J. Neurochem. **52**, 777-85  
2. Bayerl, T.M. et al. (1989) Biochim. Biophys. Acta **984**, 214-24

Cat.No.	Size
18330.02	25 g
18330.03	100 g

### ■ Deoxyribonuclease I from Bovine Pancreas min. 3000 Kunitz units/mg lyophil.

(DNase I; Deoxyribonucleodepolymerase; Deoxyribonuclease 5'-oligonucleotide hydrolase)

EC 3.1.21.1 ♦ M<sub>r</sub> 31 000 ♦ CAS [9003-98-9]

EINECS 232-667-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Cleaves preferentially double-stranded DNA (in the presence of Mg<sup>++</sup>-ions single stranded DNA) in oligonucleotides with 5'-terminal phosphate groups.

**Unit definition:** 1 Kunitz unit catalyzes an increase in absorption of 0.001 at 260 nm per minute at 25 °C, pH 5.0 when acting on highly polymerized calf thymus DNA (1).

**Activity:** min. 3000 Kunitz units/mg lyophilisate

#### References:

1. Kunitz, M. (1950) J. Gen. Physiol. **33**, 349-62  
2. Laskowski, M. Sr. (1971) The Enzymes **IV**, 3rd Ed. (Boyer, P.D.ed.) Acad. Press N.Y. 289-311  
3. Moore, S. (1981) The Enzymes **XIV**, 3rd Ed. (Boyer, P.D. ed.) Acad. Press N.Y. 281-96  
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.83, 10.6-10.12, 15.14, 15.16, 15.27-15.31, 13.24-13.25, 13.28-13.29)

Cat.No.	Size
18535.01	25 mg
18535.02	100 mg

### □ DEPC

see 18835 Diethyl pyrocarbonate, page 34

### ■ DePeX



WARNING  
H226-H315 ♦ GGVSE/ADR 3 III UN1307 ♦ IATA 3 III UN1307 ♦ WGK 2 ♦ HS 38220000

Mounting medium for histology. Refractive index 1.52 - 1.53. Neutral solution of polystyrene and plasticizers in xylene.

Cat.No.	Size
18243.01	100 ml
18243.02	500 ml

■ **Detergent 7 X®** neutral, phosphate-free

WGK 1 ♦ HS 34022090

For tissue culture and molecular biology. Highly active cleaning material, guaranteed to be non-toxic for even the most sensitive organisms.

7 X = registered trademark of ICN Pharmaceuticals Inc.

Cat.No.	Size
34205.01	1 L
34205.02	10 L
34205.03	10 x 10 L

■ **Dextran FP 40** research grade, Ph. Eur.

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 35 000 - 45 000

Loss on drying max. 7.0 %

Sulfated ash max. 0.3 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
18665.02	500 g

■ **Dextran 4** technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 3500 - 7500

Cat.No.	Size
18687.02	500 g

■ **Dextran 8** technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 8 000 - 12 000

Cat.No.	Size
18689.02	500 g

■ **Dextran 100** technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 90 000 - 110 000

Cat.No.	Size
18693.02	500 g

■ **Dextran 500** technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight ca. 500 000

Cat.No.	Size
18696.01	100 g

□ **Dextrose**

see 22700 α-D-Glucose, page 50

■ **4',6'-Diamidino-2-phenylindole·2HCl** analytical grade

(DAPI)

C<sub>16</sub>H<sub>15</sub>N<sub>5</sub>·2HCl ♦ M<sub>r</sub> 350.25 ♦ CAS [28718-90-3]

EINECS 249-186-7 ♦ WGK 1 ♦ HS 29339980

Storage temperature +2 °C to +8 °C

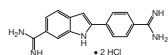
Fluorescent dye binding selectively to DNA. For demonstration of mycoplasmas and viruses in cells (1). For fluorescent chromosome staining (2). Dye for brain stem (3).

Purity min. 98.0 %

References:

1. Russel, W.C. et al. (1975) Nature **253**, 461-2
2. Schweizer, D. (1976) Chromosoma (B.) **58**, 307-24
3. van der Kooy, D. & Kuypers, H.G.J.M. (1979) Science **204**, 873-5

Cat.No.	Size
18860.01	10 mg



■ **3,3'-Diaminobenzidine·4HCl·xH<sub>2</sub>O** research grade

(DAB)

C<sub>12</sub>H<sub>14</sub>N<sub>4</sub>·4HCl·xH<sub>2</sub>O ♦ M<sub>r</sub> 360.1 (anhydr.) ♦

CAS [868272-85-9]



DANGER

H341-H350 ♦ Carc. 2 ♦ EINECS 231-018-9 ♦

WGK 3 ♦ HS 29215990

Storage temperature +2 °C to +8 °C

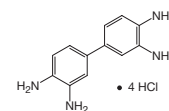
Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (HPLC) min. 96.0 %

References:

1. Hanker, J.S. et al. (1972) Histochemie **30**, 201-14
2. Graham, R.C. & Karnovsky, M.J. (1966) J. Histochem. Cytochem. **14**, 291-302

Cat.No.	Size
18865.02	1 g



□ **Diazoresorcinol**

see 34226 Resazurin-Na-salt, page 99

■ **Diethyl pyrocarbonate** research grade

(DEPC; Ethoxy formic anhydride; Pyrocarbonic acid diethyl ester)

C<sub>6</sub>H<sub>10</sub>O<sub>5</sub> ♦ M<sub>r</sub> 162.14 ♦ CAS [1609-47-8]



WARNING

H302-H315-H319-H332-H335 ♦ EINECS 216-542-8 ♦ WGK 1 ♦

HS 29209085

Storage temperature +2 °C to +8 °C

Crosslinks proteins, reacts with histidine residues (1). RNase inhibitor (2).

Sterilization of instruments: 20-minute treatment with a dilution of 1 ml/l (3).

Removal of RNases from solutions (except those containing amines like Tris):

Add DEPC to final conc. of 0.1 %, stir overnight and autoclave.

Assay (GC) min. 96.0 %

References:

1. Tsurushiin, S. et al. (1975) Biochim. Biophys. Acta **410**, 451-60
2. Berger, S.L. (1975) Anal. Biochem. **67**, 428-37
3. Pauli, O. & Genth, H. (1966) Z. Lebensm.-Unters.-Forsch. **132**, 216-27

Cat.No.	Size	EUR
18835.01	10 ml	39,00

■ **Digital Imaging and Analysis System III, basic**

HS 90275000

The SERVA Digital Imaging and Analysis System III basic is the ideal solution to master the daily tasks of documentation.

Components:

- ♦ Darkroom cabinet (ca. 42 x 55 x 52 cm)
- ♦ UV filter
- ♦ Digital SLR camera

Cat.No.
DIAS-III-B



## Digital Imaging and Analysis System L-340

HS 90275000

The Digital Imaging and Analysis System III from SERVA is a fast and convenient gel documentation system to master the daily tasks of documentation and 1D gel analysis. Solid hardware including a digital SLR camera and easy-to-grasp software are combined to provide an excellent tool to meet your needs. The camera is equipped with a UV-filter. UV-, blue- and white-light transilluminator or epi-white-light are optional. The 1D analysis software LabImage L-320 as basis of L-340 allows automatic lane detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pI standards as well as multiple standards for one gel and has many different report and export functions. In addition L-340 includes grimace correction, Rf calibration and correction of multiple standards, can normalize not only single band but group of bands and has an additional export report to RFT and XLS. An additional module allows FDA 21 CFR Part 11 compliance.

Components:

- ◆ Darkroom cabinet (ca. 42 x 55 x 52 cm)
- ◆ UV filter
- ◆ Digital SLR Camera
- ◆ LabImage L-340



Cat.No.	Size
DIAS-III-L	1 piece

## Digitin

see 19551 Digitonin water soluble, page 35

## Digitonin analytical grade, USP

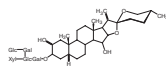
(Digitin)

$C_{56}H_{92}O_{29}$  ◆  $M_r$  1229.34 ◆ CAS [11024-24-1]



DANGER

H301-H311-H331 ◆ GGVSE/ADR 6.1 II UN2811 ◆  
IATA 6.1 II UN2811 ◆ EINECS 234-255-6 ◆ WGK 3L ◆ HS 29389010



Naturally occurring surfactant especially useful for receptor solubilization. Frequently applied as hemolysis reagent and for permeabilization of certain types of cells e.g. blood platelets, hepatocytes, yeast or tumor cells. Also used for the estimation of cholesterol.

References:

1. Scallen, D.J. & Dietert, S.E. (1969) J. Cell Biol. **40**, 802-13
2. Grigoriadis, D.E. et al. (1989) Endocrinology **125**, 3068-77
3. Hermann, P. et al. (1988) Photosynthetica **22**, 411-22
4. Boschmann, M. et al. (1989) Biomed. Biochim. Acta **48**, 645-52
5. Mooney, R.A. (1988) in Meth. Enzymol. **159**, (Corbin, J.D. & Johnson, R.A., Eds.) 193-202, Academic Press, Inc.

Cat.No.	Size
19550.02	1 g

## Digitonin water soluble research grade

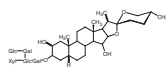
(Digitin)

$C_{56}H_{92}O_{29}$  ◆  $M_r$  1229.34 ◆ CAS [11024-24-1]



DANGER

H301-H311-H331 ◆ GGVSE/ADR 6.1 II UN2811 ◆  
IATA 6.1 II UN2811 ◆ EINECS 234-255-6 ◆ WGK 3L ◆ HS 29389010



Turbidity: 1 g is suspended in 20 ml water and dissolved by heating to 95 - 98 °C for 15 minutes.

Cat.No.	Size
19551.01	250 mg
19551.02	1 g

## 2,2-Dihydroxy-1,3-indanedione

see 30410 Ninhydrin, page 78

## 4,6-Dihydroxy-2-thiopyrimidine

see 36108 2-Thiobarbituric acid, page 139

## threo-1,4-Dimercapto-2,3-butanediol

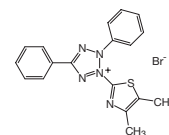
see 20710 Dithiothreitol, page 36

## 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium-bromide research grade

(MTT; Thiazolyl blue)

$C_{18}H_{16}BrN_5S$  ◆  $M_r$  414.33 ◆ CAS [298-93-1]

EINECS 206-069-5 ◆ WGK 2L ◆ HS 29341000



Detection of dehydrogenases in combination with phenazine methosulfate (1). Terminal electron acceptor in the cycling assay for pyridine nucleotides (2). For colorimetric assay to measure cell activation (3, 4).

Assay (HPLC) min. 98.0 %

References:

1. Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
2. Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
3. Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
4. Hansen, M.B. et al. (1989) J. Immunol. Methods **119**, 203-10

Cat.No.	Size
20395.01	250 mg
20395.02	1 g
20395.03	5 g
20395.04	25 g

## Dimethyl sulfoxide molecular biology grade

(DMSO)

$C_2H_6OS$  ◆  $M_r$  78.1 ◆ CAS [67-68-5]

MAK/TRK 160 mg/m<sup>3</sup> ◆ EINECS 200-664-3 ◆ WGK 1 ◆ HS 29309099

DNase/RNase not detected.

Assay min. 99.0 %  
MP 18.0 °C  
d20 °C 1.1  
Water (KF) max. 0.3 %

Cat.No.	Size
39757.01	50 ml
39757.02	250 ml

## Dimethyl sulfoxide research grade

(DMSO)

$C_2H_6OS$  ◆  $M_r$  78.1 ◆ CAS [67-68-5]

MAK/TRK 160mg/m<sup>3</sup> ◆ EINECS 200-664-3 ◆ WGK 1L ◆ HS 29309099

Highly active solvent and pharmaceutical vehicle; for freezing cells. For gradient centrifugation (1). Determination of cysteine and cystine in proteins (2).

Assay min. 99.0 %  
MP min. 18.0 °C  
d20 °C 1.1  
Water (KF) max. 0.3 %

References:

1. Kelly, R.B. & Sinsheimer, R.L. (1967) J. Mol. Biol. **29**, 229-36
2. Spencer, R.L. & Wold, F. (1969) Anal. Biochem. **32**, 185-90

Cat.No.	Size
20385.01	250 ml
20385.02	1 L

## N, N-Dimethylbenzylamine

see 14835 Benzyl dimethylamine, page 15

**Dimethylformamide** molecular biology grade

(DMF; DMFA)  
C<sub>3</sub>H<sub>7</sub>NO ♦ M<sub>r</sub> 73.10 ♦ CAS [68-12-2]



**DANGER**  
H226-H312-H319-H332-H360D ♦ Repr. 1B  
♦ MAK/TRK 10 ml/m<sup>3</sup>, 30 mg/m<sup>3</sup> ♦ EG-

Index 616-001-00-X ♦ GGVE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦  
EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected. Suitable as a solvent for chromogenic substrates used in molecular biology applications.

Assay (GC) min. 99.9 %

Cat.No.	Size
39756.01	250 ml

**Dimethylformamide** research grade

(DMF; DMFA)  
C<sub>3</sub>H<sub>7</sub>NO ♦ M<sub>r</sub> 73.1 ♦ CAS [68-12-2]



**DANGER**  
H226-H312-H319-H332-H360D ♦ Repr. 1B  
♦ MAK/TRK 10 ml/m<sup>3</sup>, 30 mg/m<sup>3</sup> ♦ EG-

Index 616-001-00-X ♦ GGVE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦  
EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

Polar organic solvent with a low evaporation rate, useful for preparing solutions with a variety of hydrophobic organic compounds used in biochemical and molecular biology applications.

Assay (GC) min. 99.9 %  
BP 152 - 154 °C

Cat.No.	Size
20270.03	250 ml

**1,9-Dimethylmethylene blue-chloride** pure

(3,7-Bis(dimethylamino)-1,9-dimethylphenothiazin-5-ium chloride)  
C<sub>18</sub>H<sub>22</sub>CIN<sub>3</sub>S<sub>0.5</sub>ZnCl<sub>2</sub> ♦ M<sub>r</sub> 416.05 ♦ CAS [931418-92-7]



**WARNING**  
H319 ♦ WGK 2L ♦ HS 32041300

Histological stain with strong metachromic properties (1, 2).

Particularly suitable for the quantitation and discrimination of sulfated glycosamino glycans (proteoglycans) (3, 4).

**References:**

- Taylor, K.B. & Jefree, G.B. (1969) *Histochem. J.* **1**, 199-204
- Toepfer, K. (1970) *Histochemie* **21**, 64-72
- Farnedale, R.W. et al. (1982) *Connect. Tissue Res.* **9**, 247-8
- Klompmaekers, A.A. & Hendriks, T. (1986) *Anal. Biochem.* **153**, 80-4

Cat.No.	Size
20335.01	1 g

**Direct Red 28**

see 27215 Congo Red, page 31

**L(-)-3,3'-Dithiobis(2-aminopropanoic acid)**

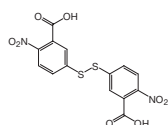
see 17880 L-Cystine, page 32

**5,5'-Dithiobis(2-nitrobenzoic acid)** research grade

(DTNB; Ellman's reagent)  
C<sub>14</sub>H<sub>8</sub>N<sub>2</sub>O<sub>6</sub>S<sub>2</sub> ♦ M<sub>r</sub> 396.36 ♦ CAS [69-78-3]



**WARNING**  
H315-H319-H335 ♦ EINECS 200-714-4 ♦  
WGK 1 ♦ HS 29309099



For qualitative and quantitative determination of sulfhydryl groups.

Assay (titr.) 99.0 - 101.0 %  
Molar extinction coefficient 13 600 - 14 250  
(l mol<sup>-1</sup> cm<sup>-1</sup>)

**References:**

- Ellman, G.L. (1959) *Arch. Biochem. Biophys.* **82**, 70-7

Cat.No.	Size
20735.02	5 g

**Dithioerythritol** analytical grade

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)  
C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub> ♦ M<sub>r</sub> 154.24 ♦ CAS [6892-68-8]



**WARNING**  
H315-H319-H335 ♦ EINECS 229-998-8 ♦ WGK 3L ♦  
HS 29309099



Storage temperature +2 °C to +8 °C

Quantitatively reduces disulfide groups, forming a cyclic disulfide (1, 2, 3).  
Not hygroscopic.

Assay (titr.) min. 99.0 %  
MP 82 - 86 °C

**References:**

- Cleland, W.W. (1964) *Biochemistry* **3**, 480-2
- Zahler, W.L. & Cleland, W.W. (1968) *J. Biol. Chem.* **243**, 716-9
- Burstein, Y. & Patchornik, A. (1972) *Biochemistry* **11**, 2939-44

Cat.No.	Size
20697.03	5 g

**Dithiothreitol** electrophoresis grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)  
C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub> ♦ M<sub>r</sub> 154.25 ♦ CAS [3483-12-3]



**WARNING**  
H302-H315-H319-H335 ♦ EINECS 222-468-7 ♦  
HS 29309099



Storage temperature +2 °C to +8 °C

DTT is effective in sample buffers for reducing protein disulfide bonds prior to SDS-PAGE (1). Tested for use in reduced SDS-PAGE. Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %  
MP 40 - 99 °C

**References:**

- Cleland, W.W. (1964) *Biochemistry* **3**, 480-2

Cat.No.	Size
20711.02	5 g

**Dithiothreitol** analytical grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)  
C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub> ♦ M<sub>r</sub> 154.25 ♦ CAS [3483-12-3]



**WARNING**  
H302-H315-H319-H335 ♦ EINECS 222-468-7 ♦ WGK 3L  
♦ HS 29309099



Storage temperature +2 °C to +8 °C

For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %.  
Hygroscopic.

Assay (titr.) min. 99.0 %  
MP 40 - 45 °C

**References:**

- Cleland, W.W. (1964) *Biochemistry* **3**, 480-2

Cat.No.	Size
20710.02	1 g
20710.03	5 g
20710.04	25 g

**Dithiothreitol** molecular biology grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)  
C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub> ♦ M<sub>r</sub> 154.25 ♦ CAS [3483-12-3]



**WARNING**  
H302-H315-H319-H335 ♦ EINECS 222-468-7 ♦ WGK 1 ♦  
HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected. For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %  
MP 40 - 45 °C

**References:**

- Cleland, W.W. (1964) *Biochemistry* **3**, 480-2

Cat.No.	Size
39759.01	1 g
39759.02	5 g
39759.03	25 g

**DMF**

see 20270 Dimethylformamide, page 36

## DMSO

see 20385 Dimethyl sulfoxide, page 35

## DNA from fish sperm pure

CAS [100403-24-5]

EINECS 309-566-6 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Defatted; this material is largely depolymerized; suitable as source for various mono- and oligonucleotides. May be used as blocking reagent after solubilization, shearing and heat denaturation (3).

### References:

- Zamenhoff, S. (1958) Biochem. Prep. **6**, 6-12
- Bonner, J. & Huang, R.C.C. (1963) J. Mol. Biol. **6**, 169-74
- J. Sambrook, E.F. Fritsch, T. Maniatis (1989) Molecular Cloning - A Laboratory Manual, B15

Cat.No.	Size
18580.01	25 g

## DNA Molecular Weight Markers

see 39314 SERVA DNA Standard 1 Kbp DNA Ladder lyophilized, page 105

## DNADecon

HS 38220000

Highly effective decontamination solution for removal of DNA and RNA contamination on surfaces, instruments and laboratory equipment. DNADecon is ideal for use in decontamination of PCR work places, because it completely destroys and removes DNA molecules from any surface. It can as well be used for decontamination of electrophoresis chambers, pipettes, reaction tubes etc.

DNADecon is ready-to-use, non-alkaline and non-carcinogenic.

Supplied in a spray bottle (250 ml) or as refill (500 ml).

Cat.No.	Size
39810.01	250 ml
39810.02	500 ml

## DNase I

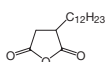
see 18535 Deoxyribonuclease I from Bovine Pancreas min. 3000 Kunitz units/mg, page 33

## 2-Dodecenylsuccinic acid anhydride pract.

(DDSA; 2-Dodecenylsuccinic anhydride;

EPON hardener DDSA)

$C_{16}H_{26}O_3$  ♦ M<sub>r</sub> 266.38 ♦ CAS [25377-73-5]



WARNING

H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171980

Hardener for epoxy resins.

Cat.No.	Size
20755.01	100 g
20755.02	1 kg

## Dodecylsulfate-Na-salt electrophoresis grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

$C_{12}H_{25}O_4S-Na$  ♦ M<sub>r</sub> 288.38 ♦ CAS [151-21-3]



DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ HS 34029090

CMC (25 °C) 8.1 mM, Na (25 °C) 60 - 62, HLB 40

Anionic detergent

Ultrapure SDS, application proofed quality for all electrophoresis and blotting techniques.

Assay (GC) min. 99.0 %

A 1 cm/10 % in water

260 nm

280 nm

max. 0.15

max. 0.05

Cat.No.	Size
20771.01	100 g
20771.02	500 g

## Dodecylsulfate-Na-salt cryst. research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

$C_{12}H_{25}O_4S-Na$  ♦ M<sub>r</sub> 288.38 ♦ CAS [151-21-3]



DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

CMC (25 °C) 8.1 mM, Na (25 °C) 60 - 62, HLB 40

Anionic detergent

Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC)

$C_{10}$ - and  $C_{14}$ -sulfate (GC)

A 1 cm/10 % in water

260 nm

280 nm

min. 99.5 %

max. 1.0 %

max. 1.5

max. 1.0

Cat.No.	Size
20760.01	100 g
20760.03	250 g
20760.02	1 kg

## Dodecylsulfate-Na-salt for biochemistry

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

$C_{12}H_{25}O_4S-Na$  ♦ M<sub>r</sub> 288.38 ♦ CAS [151-21-3]



DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

CMC (25 °C) 8.1 mM, Na (25 °C) 60 - 62, HLB 40

Anionic detergent for surfactant studies.

Assay (GC)

min. 99.0 %

Cat.No.	Size
20783.01	250 g
20783.02	1 kg

## Dodecylsulfate-Na-salt 2 x cryst., analytical grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

$C_{12}H_{25}O_4S-Na$  ♦ M<sub>r</sub> 288.38 ♦ CAS [151-21-3]



DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

CMC (25 °C) 8.1 mM, Na (25 °C) 60 - 62, HLB 40

Anionic detergent

Ultrapure. Useful for protein solubilization, plasmid extraction from bacteria, reduction of non-specific binding sites on membranes during nucleic acid hybridization and electrophoresis.

Cat.No.	Size
20763.01	100 g
20763.02	500 g

## Dodecylsulfate-Na-salt in Pellets research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate; SDS pellets)

$C_{12}H_{25}O_4S-Na$  ♦ M<sub>r</sub> 288.38 ♦ CAS [151-21-3]



WARNING

H228-H302-H312-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN1325 ♦ IATA 4.1 III UN1325 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

CMC (25 °C) 8.1 mM, Na (25 °C) 60 - 62, HLB 40

Anionic detergent

Ultrapure SDS pressed in small pellets thus avoiding the irritant dust of the powder form. Suitable for electrophoresis, molecular biology and biochemistry.

Assay (titr.)

$C_{10}$  and  $C_{14}$ -sulfate (GC)

A 1 cm/10 % in water

260 nm

280 nm

min 99.5 %

max. 1.0 %

max. 1.5

max. 1.0

Cat.No.	Size
20765.01	100 g
20765.02	250 g
20765.03	1 kg

■ **DOWEX® 1X2 (200-400 mesh)** pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB  
Capacity min. 0.6 eq/l  
Loss on Drying 70 - 80 %

Cat.No.	Size
41030.02	500 g

■ **DOWEX® 1X2 (200-400 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB  
Capacity min. 0.6 eq/l  
Loss on Drying 70 - 80 %

Cat.No.	Size
41031.01	100 g
41031.02	500 g

■ **DOWEX® 1X8 (20-50 mesh)** pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB  
Capacity min. 1.3 eq/l  
Loss on Drying 50 - 60 %

Cat.No.	Size
41080.04	500 g

■ **DOWEX® 1X8 (20-50 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB  
Capacity 1.0 - 1.5 eq/l  
Loss on Drying 50 - 60 %

Cat.No.	Size
41081.04	500 g

■ **DOWEX® 1X8 (100-200 mesh)** pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB  
Capacity min. 1.2 eq/l  
Loss on Drying 39 - 45 %

Cat.No.	Size
41100.02	500 g

■ **DOWEX® 1X8 (100-200 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB  
Capacity ca. 1.2 eq/l  
Loss on Drying 39 - 50 %

Cat.No.	Size
41101.01	100 g
41101.02	500 g

■ **DOWEX® 50 WX2 (100-200 mesh)** pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB  
Capacity min. 0.6 eq/l  
Loss on Drying 74 - 82 %

Cat.No.	Size
41520.02	500 g

■ **DOWEX® 50 WX2 (100-200 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB  
Capacity min. 0.6 eq/l  
Loss on Drying 74 - 82 %

Cat.No.	Size
41521.01	100 g

■ **DOWEX® 50 WX2 (200-400 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB  
Capacity min. 0.6 eq/l  
Loss on Drying 74 - 81 %

Cat.No.	Size
41531.02	500 g

■ **DOWEX® 50 WX8 (100-200 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB  
Capacity min. 1.7 eq/l  
Loss on Drying 45 - 55 %

Cat.No.	Size
41621.01	100 g
41621.02	500 g

□ **DPBS**

see 47302 Buffer Substance Dulbecco's, page 21

□ **DPN**

see 30311 β-Nicotinamide adenine dinucleotide, page 77

■ **dsDNase heat labile, solution**

HS: 35079090

Storage Temperature: -15 °C to -25 °C

M, 47 600

Unique double-strand specific endonuclease, which can be easily inactivated by heat treatment. As it does not digest ssDNA or RNA, it allows to specifically remove dsDNA in the presence of other nucleic acids. The yielding product is oligonucleotides with 5'-phosphates and 3'-hydroxyl termini.

Recombinantly produced in *Pichia pastoris*, specific activity ca. 200 000 units/mg.

- ◆ Complete, irreversible inactivation by heat treatment at 5 min at 58 °C, 1 mM DTT, pH ≥ 8
- ◆ Decontamination of PCR master mixes
- ◆ Removal of genomic DNA from RNA preparations prior to RT-qPCR

Cat.No.	Size
18545.01	250 U

□ **DTE**

see 20697 Dithioerythritol, page 36

□ **DTNB**

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 36

□ **DTT**

see 20711 Dithiothreitol, page 36

□ **DTT**

see 20710 Dithiothreitol, page 36

■ **Dummy Plate**

HS 39269097

For leak-free buffer compartment. Replaces second gel when only one gel will be run with BlueVertical™ PRiME™.

Cat.No.	Size
BV-104-7	1 piece

### ■ Dye 488 Antibody Labelling Kit

HS: 38220000

Dye 488 Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 1 mg per reaction. The green fluorescent dye has an excitation maximum at 494 nm and emission maximum at 520 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 1 or 2 vials dye 488, labelling buffer, empty gel filtration column, purification resin and elution buffer

Cat.No.	Size
59000.01	1 react.
59000.02	2 react.

### ■ Dye 488 Micro Antibody Labelling Kit

HS: 38220000

Dye 488 Micro Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 50 - 100 µg per reaction.

The green fluorescent dye has an excitation maximum at 494 nm and emission maximum at 520 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 3 vials dye 488, labelling buffer, 3 purification resin spin columns and 3 collection tubes

Cat.No.	Size
59004.01	3 react.

### ■ Dye 550 Antibody Labelling Kit

HS: 38220000

Dye 550 Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 1 mg per reaction.

The red fluorescent dye has an excitation maximum at 550 nm and emission maximum at 565 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 1 or 2 vials dye 550, labelling buffer, empty gel filtration column, purification resin and elution buffer

Cat.No.	Size
59001.01	1 react.
59001.02	2 react.

### ■ Dye 550 Micro Antibody Labelling Kit

HS: 38220000

Dye 550 Micro Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 50 - 100 µg per reaction.

The red fluorescent dye has an excitation maximum at 550 nm and emission maximum at 565 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 3 vials dye 550, labelling buffer, 3 purification resin spin columns and 3 collection tubes

Cat.No.	Size
59005.01	3 react.

### ■ Dye 645 Antibody Labelling Kit

HS: 38220000

Dye 645 Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 1 mg per reaction.

The far red fluorescent dye has an excitation maximum at 648 nm and emission maximum at 667 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 1 or 2 vials dye 645, labelling buffer, empty gelfiltration column, purification resin and elution buffer

Cat.No.	Size
59002.01	1 react.
59002.02	2 react.

### ■ Dye 645 Micro Antibody Labelling Kit

HS: 38220000

Dye 645 Micro Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 50 - 100 µg per reaction.

The far red fluorescent dye has an excitation maximum at 648 nm and emission maximum at 667 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 3 vials dye 645, labelling buffer, 3 purification resin spin columns and 3 collection tubes

Cat.No.	Size
59006.01	3 react.



**Dye 770 Antibody Labelling Kit**

HS: 38220000

Dye 770 Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 1 mg per reaction. The near infrared fluorescent dye has an excitation maximum at 774 nm and emission maximum at 790 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 1 or 2 vials dye 770, labelling buffer, empty gelfiltration column, purification resin and elution buffer

Cat.No.	Size
59003.01	1 react.
59003.02	2 react.

**Dye 770 Micro Antibody Labelling Kit**

HS: 38220000

Dye 770 Micro Antibody Labelling Kit offers an efficient and easy method for the fluorescent conjugation of antibodies and molecules containing a primary amino group in the scale 50 - 100 µg per reaction. The near infrared fluorescent dye has an excitation maximum at 774 nm and emission maximum at 790 nm.

- ◆ Ready to use for conjugation
- ◆ High brightness and purity of the dye
- ◆ Easy and reproducible
- ◆ All-included kit

The labelled antibodies are suitable for Western blotting, Fluorescent Microscopy, Flow Cytometry, Immunohistochemistry, Primary Detection, ELISAs, Immunocytochemistry, Indirect FISH.

**Content:** 3 vials dye 770, labelling buffer, 3 purification resin spin columns and 3 collection tubes

Cat.No.	Size
59007.01	3 react.

**E-64 research grade**

(trans-Epoxy succinyl-L-leucylamido-(4-guanidino) butane; Epoxy[L-3-trans-carboxy oxiran-2-carbonyl]-L-Leu-Agmatin)

C<sub>15</sub>H<sub>27</sub>N<sub>5</sub>O<sub>5</sub> ◆ M, 357.4 ◆ CAS [66701-25-5]

HS 29241900

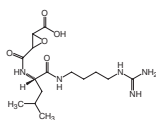
Storage temperature -15 °C to -25 °C

Inhibitor for papain and other cysteine (thiol) proteases. Effects on metastasis formation in mice (5).

Assay (HPLC) min. 99.0 %

**References:**

1. Hanada, K. et al. (1978) Agric. Biol. Chem. **42**, 523, 529
2. Varughese, K.J. et al. (1989) Biochemistry **28**, 1330-2
3. Nakao, H. et al. (1989) Int. J. Biochem. **21**, 139-42
4. Jani, J.P. et al. (1992) Oncol. Res. **4**, 59-63
5. Leto, G. et al. (1994) In Vivo **8**, 231-6



Cat.No.	Size
21100.01	5 mg
21100.02	25 mg

**EDTA**

see 11278 Ethylenediamine tetraacetic acid, page 42

**EDTA-disodium**

see 11280 Ethylenediamine tetraacetic acid-Na<sub>2</sub>-salt, page 43

**EGTA**

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 42

**Egtazic acid**

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 42

**Elastase from porcine pancreas min. 200 U/mg**

lyophil. salt-free

(Pancreatopeptidase E)

EC 3.4.21.36 ◆ M, ca. 25 900 ◆ CAS [39445-21-1]



DANGER

H315-H319-H334-H335 ◆ EINECS 254-453-6 ◆ WGK 1 ◆ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins and peptides.

Serine proteinase with broad substrate specificity. It preferentially cleaves peptide bonds at the carbonyl end of amino acid residues with small hydrophobic side chains, such as glycine, valine, leucine, isoleucine, and particularly alanine. This specificity explains its unique ability to digest native elastin, which is found in highest concentrations in the elastic fibers of connective tissues. Therefore elastase in combination with other enzymes like trypsin is frequently used to dissociate tissues which contain extensive intercellular fiber networks.

Elastase is also able to digest other proteins such as fibrin, hemoglobin, and casein, but not native collagen and keratin. In the presence of Tris, sodium sulfate or SDS enzyme activity is greatly stimulated.

**Unit definition:** One unit will hydrolyze one micromole of methoxy succinyl-alanine-alanine-proline-valine-p-nitroanilide per minute at 37 °C and pH 7.5.

**References:**

1. Naughton, M. A. & Sanger, F. (1961) Biochem. J. **78**, 156-63
2. Gertler, A. & Hofmann, T. (1970) Can. J. Biochem. **48**, 384-6

Cat.No.	Size
20930.01	10 mg
20930.02	25 mg

**Electrode lid with IPG tray, for HPE™ BlueHorizon™**

HS 90272000

Contains HPE™ electrode lid with at right angle arranged electrodes and IPG tray with 12 slots capable to hold 7 cm to 24 cm IPG strips. In combination with BluePower™ 6000 IPG power supply, this set turns your HPE™ BlueHorizon™ System into a 1<sup>st</sup> dimension IEF device for 2D electrophoresis.

Cat.No.	Size
HPE-ELIPG	1 kit

**Electrode Set for BB-SD11**

HS 90272000

Replacement electrode set for BlueBlot Semi-Dry Blotter SD 11 (BB-SD11). Will also fit into the base of BlueBlot Semi-Dry Blotter SD 17 (BB-SD17).

Cat.No.	Size
BB-E11	1 piece

**Electrode Set for BB-SD17**

HS 90272000

Replacement electrode set for BlueBlot Semi-Dry Blotter SD 17 (BB-SD17). Will also fit into the base of BlueBlot Semi-Dry Blotter SD 11 (BB-SD11).

Cat.No.	Size
BB-E17	1 piece

**Electrode Wicks standard size**

HS 48232000

Filter cardboard, 120 x 6 x 1 mm.

Cat.No.	Size
42988.01	100 pieces

**Electrode Wicks long size**

HS 48232000

Filter cardboard, 240 x 6 x 1 mm.

Cat.No.	Size
42987.03	100 pieces



### ■ Electrode Wicks extra size

HS 48232000

Filter cardboard, 300 x 6 x 1 mm.

Cat.No.	Size
42972.03	100 pieces

### ■ Electronic Starter, for SERVA UV-Table CII (UV-CII)

HS 90278017

Cat.No.	Size
UV-CII-ES	1 piece

### □ Ellman's reagent

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 36

### ■ Embedding Medium ERL-4221D

(Epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate; Epoxy embedding medium; Spurr Embedding Medium)

C<sub>14</sub>H<sub>20</sub>O<sub>4</sub> ♦ M<sub>r</sub> 252 ♦ CAS [2386-87-0]

WARNING

H317 ♦ EINECS 219-207-4 ♦ WGK 1L ♦ HS 39073000

Diepoxide. Cycloaliphatic epoxy resin. Embedding medium for electron microscopy. Less toxic substitute for the classical Spurr embedding medium ERL 4206.

Epoxy equivalent weight 126 - 135  
 Viscosity (25 °C) 220 - 250 mPa·s  
 Density (g/ml) 1.159 - 1.174

Cat.No.	Size
21041.02	250 ml

### ■ Endo F3, recombinant lyophilized

(Endo-β-N-acetylglucosaminidase F3, Endoglycosidase)

M<sub>r</sub> 36.000

HS 35079090

Storage Temperature: +15 °C to +30 °C

Endo F3, recombinant endo-β-N-acetylglucosaminidase F3 from *Flavobacterium meningosepticum*, cleaves in β(1-4) link in between the two core GlcNAcs of asparagine linked glycans. Endo F3 cleaves this link on core-fucosylated structures. The enzyme can be applied to workflows alone or in conjunction with PNGase F to allow for structural characterization of core-fucosylated glycans in tissues while maintaining spatial localization. Especially designed and tested for mass spectrometry imaging and HPLC/UPLC

Contains a His-tag for easy removal by affinity chromatography

Because the enzyme is lyophilized, there is no need for refrigerated transport and storage is at room temperature. Concentration after reconstitution: 8 u/μl in 100 μl H<sub>2</sub>O dest.

**Unit definition:** Human IgG (10 μg) is incubated with 1 μL of Endo F3 for 60 minutes at 37 °C and then analyzed by SDS-PAGE. Fully glycosylated IgG heavy chain migrates at approximately 50 kDa. Loss of glycan results in a 2.5 kDa shift that can be observed following staining with Coomassie Brilliant Blue™.

Cat.No.	Size
36407.01	100 μg

### ■ Endo S, recombinant lyophilized

(Endo-β-N-acetylglucosaminidase S, Endoglycosidase)

M<sub>r</sub> 108.000

HS 35079090

Storage Temperature: +15 °C to +30 °C

Endo S, a recombinant endo-β-N-acetylglucosaminidase S from *Streptococcus pyogenes*, plays a central role in glycoengineering strategies for the development of IgG antibodies with improved therapeutic efficacy. This enzyme will leave any human IgG with a single N-Acetylglucosamine, with or without an attached fucose molecule.

Especially designed and tested for mass spectrometry imaging and HPLC/UPLC. Outstanding performance — produces in HPLC clean peaks with very high yields. Contains a His-tag for easy removal by affinity chromatography

The endoglycosidase Endo S has a unique accuracy for cleaving the N-linked glycans from the chitobiose core of the heavy chain of native IgG molecules. The enzyme hydrolyzes the β(1-4) linkage between the two core GlcNAcs of asparagine linked biantennary complex-type glycans of human IgG Fc regions.

Because the enzyme is lyophilized, there is no need for refrigerated transport and storage is at room temperature. Concentration after reconstitution: 200 u/μl (1.0 mg/ml) in 10 μl/50 μl/100 μl H<sub>2</sub>O dest. Delivered with 10x reaction buffer.

**Unit definition:** One unit of reconstituted Endo S will catalyze the deglycosylation of 10 μg of IgG in 60 minutes at 37 °C. One unit is equal to 1 IUB milliunit.

Cat.No.	Size
36408.01	10 μg
36408.01	50 μg
36408.01	100 μg

### ■ Endoproteinase Glu-C, recombinant sequencing grade

(V8 protease)

3.4.21.19 ♦ CAS [66676-43-5]

HS 35079090

Storage temperature -15 °C to -25 °C

Due to its highly specific cleavage of peptides the serine protease Glu-C (*S. aureus* V8) is used to produce protein digests for peptide mapping applications or protein identification by peptide mass fingerprinting or MS/MS spectral matching.

The specificity of Glu-C is primarily determined by the buffer pH and composition. Using phosphate buffers (pH 7.8), Glu-C will cleave at both glutamyl and aspartyl bonds. Ammonium bicarbonate buffer (pH 7.8) will lead to a preferential cleavage of glutamyl bonds. The presence of proline residues on the carboxy side of the peptide bond inhibits the cleavage.

- ♦ High specificity, purity and stability
- ♦ Recombinant - animal origin material free, consistent lot-to-lot quality

Cat.No.	Size
20984.01	50 μg

### □ Eosin G

see 21005 Eosin Y·Na-salt, page 41

### ■ Eosin Y·Na-salt research grade

(Acid Red 87; Eosin Yellowish; Tetrabromo-fluorescein;

Eosin G)

C.I.45380 ♦ C<sub>20</sub>H<sub>6</sub>Br<sub>4</sub>O<sub>5</sub>·Na<sub>2</sub> ♦ M<sub>r</sub> 691.9 ♦

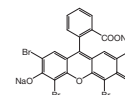
CAS [17372-87-1]

HS 29329900

Tested for use as histological stain and as fluorescent indicator (Y = yellowish).

λ max. 0.001 % in water 516 ± 4 nm

Cat.No.	Size
21005.01	25 g



**EPO Doping IEF Kit 30S**

HS 38220000

Storage temperature -15 °C to -25 °C \*

Ready-to-use kit for differentiation of natural and recombinant erythropoietin (EPO) in doping controls according to National and World Anti-Doping Agencies.

Kit contains 4 EPO IEF Clean Gels with 30 slots, rehydration additive, SERVALYT™ EPO mix, SERVALYT™ 6 – 8 as cathode buffer, electrode wicks and drying cardboards; suitable for HPE™ BlueTower, HPE™ BlueHorizon™ and HPE™ BlueHorizon™ Multi Deck.

Cat.No.	Size
43389.01	1 kit

**Epon 812**

see 21045 Glycid ether 100, page 52

**EPON accelerator DMP-30**

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 141

**EPON hardener DDSA**

see 20755 2-Dodecylsuccinic acid anhydride, page 37

**EPON hardener MNA**

see 29452 Methylnadidic anhydride, page 72

**Epoxy embedding medium**

see 21041 Embedding Medium ERL-4221D, page 41

**1,2-Epoxypropane**

see 33715 Propylene oxide, page 86

**ERL-4206 hardener**

see 30812 Nonenylsuccinic anhydride, page 78

**ERL-4206 plasticizer**

see 18247 D.E.R.® 736, page 33

**Ethanol denaturated 96 %**

C<sub>2</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 46.07 ♦ CAS [64-17-5]



DANGER  
H225-H319 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170  
♦ EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Suitable for biochemical and histochemical applications, for the preparation of staining and destaining solutions of PAGE gels.

Assay (CTB)	min. 95.0 %
Isopropanol	1 %
Methyl ethyl ketone	1 %
Denatoniumbenzoat	10 ppm
Aldehyde	max. 30 ppm
Acidity	max. 10 ppm
Methanol	max. 1000 ppm
Residue on evaporation	max. 25 ppm

Cat.No.	Size
11096.01	2,5 L
11096.02	5 L

**Ethanol undenaturated 96 % analytical grade**

C<sub>2</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 46.07 ♦ CAS [64-17-5]



DANGER  
H225-H319 ♦ MAK/TRK 500 ml/m<sup>3</sup>, 960 mg/m<sup>3</sup> ♦ GGVSE/  
ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦  
WGK 1 ♦ HS 22071000

Suitable for analytical and biochemical applications.

Assay (GC)	94.0 - 96.0 %
Water (KF)	4.0 - 6.0 %

Cat.No.	Size
11094.01	1 L
11094.02	2,5 L

**Ethanol undenaturated absolute analytical grade**

C<sub>2</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 46.07 ♦ CAS [64-17-5]



DANGER  
H225-H319 ♦ MAK/TRK 500 ml/m<sup>3</sup>, 960 mg/m<sup>3</sup> ♦  
EG-Index 603-002-00-5 ♦ GGVSE/ADR 3 II UN1170 ♦  
IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 L ♦ HS 22071000

Suitable for use in analytical and biochemical applications.

Assay (GC)	min. 99.7 %
Water (KF)	max. 0.2 %

Cat.No.	Size
11093.01	250 ml
11093.02	1 L
11093.03	2,5 L

**Ethanol undenaturated absolute molecular biology grade**

C<sub>2</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 46.07 ♦ CAS [64-17-5]



DANGER  
H225-H319 ♦ MAK/TRK 500 ml/m<sup>3</sup>, 960 mg/m<sup>3</sup> ♦  
EG-Index 603-002-00-5 ♦ GGVSE/ADR 3 II UN1170 ♦  
IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 L ♦ HS 22071000

DNase/RNase not detected. Suitable for use in the precipitation of nucleic acids.

Assay	min. 99.7 %
Water (KF)	max. 0.2 %

Cat.No.	Size
39556.01	250 ml
39556.02	1 L
39556.03	2,5 L

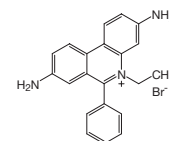
**Ethidium bromide aqueous solution 1 % w/v**



DANGER  
H332-H341 ♦ GGVSE/  
ADR 6.1 III UN2810 ♦  
IATA 6.1 III UN2810 ♦ WGK 2 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Concentration: 10 mg/ml. Suitable for use in staining of DNA after electrophoresis or as counterstain of cell nuclei in histology and cytology.



Cat.No.	Size
21251.01	25 ml

**Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid analytical grade**

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)  
C<sub>14</sub>H<sub>24</sub>N<sub>2</sub>O<sub>10</sub> ♦ M<sub>r</sub> 380.35 ♦ CAS [67-42-5]

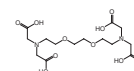
EINECS 200-651-2 ♦ HS 29225000

High selectivity for Ca<sup>2+</sup> over Mg<sup>2+</sup>.

Assay (titr.)	min. 99.0 %
---------------	-------------

**References:**

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7



Cat.No.	Size
11290.01	5 g
11290.02	50 g

**Ethylenediamine tetraacetic acid analytical grade**

(EDTA; Ethylenedinitrilo-tetraacetic acid)  
C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub> ♦ M<sub>r</sub> 292.3 ♦ CAS [60-00-4]

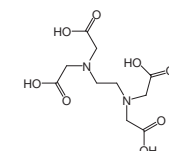


WARNING  
H319-H332-H373 ♦ EG-  
Index 607-429-00-8 ♦

EINECS 200-449-4 ♦ WGK 2 L ♦ HS 29212900

Ethylenediaminetetraacetic acid (EDTA) chelates metal divalent cations like calcium, magnesium by forming metal-EDTA complexes. EDTA is used in a wide range of applications: as a buffer component in nucleic acid purification and electrophoresis, an inhibitor of enzymes like metalloproteases and nucleases, an anti-bacterial agent and in cleaning products and detergent formulations.

Assay (titr.)	min. 99.0 %
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Cat.No.	Size
11278.01	100 g
11278.02	1 kg

### Ethylenediamine tetraacetic acid- $\text{Na}_2$ -salt

molecular biology grade

(Versene disodium; EDTA-disodium)

$\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8 \cdot \text{Na}_2 \cdot 2\text{H}_2\text{O}$   $\diamond$  M<sub>r</sub> 372.3  $\diamond$  CAS [6381-92-6]

EINECS 205-358-3  $\diamond$  WGK 2L  $\diamond$  HS 29212900

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size
39760.01	250 g

### Ethylenediamine tetraacetic acid- $\text{Na}_2$ -salt, solution, 0.5 M

molecular biology grade

WGK 2  $\diamond$  HS 38220000

DNase/RNase not detected. pH (20 °C):  $8.0 \pm 0.1$ , 0.5 M solution. Ready-to-use EDTA disodium salt solution, which can be readily diluted into any buffer of choice. Suitable for electrophoresis buffers, protein purification etc.

#### Composition:

EDTA- $\text{Na}_2 \cdot 2\text{H}_2\text{O}$  (cat. no. 39760) 186.1 g/l

pH  $8.0 \pm 0.1$

Cat.No.	Size
39761.02	500 ml

### Ethylenediamine tetraacetic acid- $\text{Na}_2$ -salt analytical grade

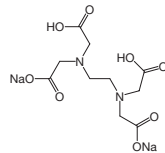
(Versene disodium; EDTA-disodium)

$\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8 \cdot \text{Na}_2 \cdot 2\text{H}_2\text{O}$   $\diamond$  M<sub>r</sub> 372.3  $\diamond$  CAS [6381-92-6]

EINECS 205-358-3  $\diamond$  WGK 2L  $\diamond$  HS 29212900

Ethylenediaminetetraacetic acid sodium salt (EDTA- $\text{Na}_2$ ) chelates metal divalent cations like calcium, magnesium by forming metal-EDTA complexes. EDTA is used in a wide range of applications: as a buffer component in nucleic acid purification and electrophoresis, an inhibitor of enzymes like metalloproteases and nucleases, an anti-bacterial agent and in cleaning products and detergent formulations.

Assay (titr.) min. 99.0 %



Cat.No.	Size
11280.01	100 g
11280.02	1 kg
11280.03	5 kg

### Ethylmercury thiosalicylic acid- $\text{Na}$ -salt

research grade, Ph. Eur., USP

(Merthiolate; Thimerosal; Thiomersal)

$\text{C}_9\text{H}_9\text{HgO}_2\text{S} \cdot \text{Na}$   $\diamond$  M<sub>r</sub> 404.8  $\diamond$  CAS [54-64-8]



DANGER

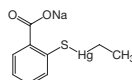
H301-H310-H330-H373-H410

$\diamond$  MAK/TRK 0.01 ml/m<sup>3</sup>, 0.1 mg/m<sup>3</sup> calculated

as mercury  $\diamond$  EG-Index 080-004-00-7  $\diamond$  GGVSE/ADR 6.1 III UN2025  $\diamond$

IATA 6.1 III UN2025  $\diamond$  EINECS 200-210-4  $\diamond$  WGK 3L  $\diamond$  HS 28521000

Assay Ph. Eur. (Titration) 97.0 - 101.0 %



Cat.No.	Size
11340.02	25 g
11340.03	100 g

### Excellent Gel Kit 7.5 % for 1D SDS PAGE

HS 38220000

Storage temperature +2 °C to +8 °C

The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15  $\mu\text{l}$ . The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The standard support film is recommended for Coomassie® or silver staining. For fluorescence detection of proteins, gels cast on a non-fluorescent support film are available. The Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 7.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15  $\mu\text{l}$ ) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43422.01	1 kit

### Excellent Gel Kit 12.5 % for 1D SDS PAGE

HS 38220000

Storage temperature +2 °C to +8 °C

The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15  $\mu\text{l}$ . The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The standard support film is recommended for Coomassie® or silver staining. For fluorescence detection of proteins, gels cast on a non-fluorescent support film are available. The Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 12.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15  $\mu\text{l}$ ) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43421.01	1 kit

### Excellent Gel Kit 15 % for 1D SDS PAGE

HS 38220000

Storage temperature +2 °C to +8 °C

The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15  $\mu\text{l}$ . The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The standard support film is recommended for Coomassie® or silver staining. For fluorescence detection of proteins, gels cast on a non-fluorescent support film are available. The Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 12.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15  $\mu\text{l}$ ) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43425.01	1 kit

**Excellent Gel Kit NF 7.5 % for 1D SDS PAGE**

HS 38220000  
Storage temperature +2 °C to +8 °C

The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15 µl. The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The gels are cast on a non-fluorescent support film making them suitable for all fluorescent applications. For Coomassie® or silver staining, gels cast on a standard support film are available.

Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 7.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43424.01	1 kit

**Excellent Gel Kit NF 12.5 % for 1D SDS PAGE**

HS 38220000  
Storage temperature +2 °C to +8 °C

The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15 µl. The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The gels are cast on a non-fluorescent support film making them suitable for all fluorescent applications. For Coomassie® or silver staining, gels cast on a standard support film are available.

The Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 12.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43423.01	1 kit

**Excellent Gel Kit NF 15 % for 1D SDS PAGE**

HS 38220000  
Storage temperature +2 °C to +8 °C

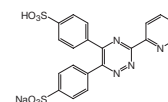
The ready-to-use precast horizontal Excellent gels are the ideal tool to run high resolution horizontal SDS PAGE. Up to 25 samples can be run in one gel, sample volume is 15 µl. The thin gel layer and running conditions at temperature-controlled 15 °C enable high resolution of protein bands, fast staining/destaining and much easier handling compared to vertical PAGE. Due to the horizontal method, low buffer consumption is an extra plus in comparison with operating a vertical system. The standard support film is recommended for Coomassie® or silver staining. For fluorescence detection of proteins, gels cast on a non-fluorescent support film are available. The Excellent Gel Kits are the ideal alternative for ExcelGel™ for SDS PAGE from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGels™ ensuring comparable results.

Contains: 4 film-backed precast 12.5 % T SDS PAGE gels with a Tris/acetate buffer system (size: 260 x 125 x 0.43 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. For run in horizontal flatbed chambers like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43426.01	1 kit

**Ferrozine® analytical grade**

(PDT disulfonate; 3-[2-Pyridyl]-5,6-diphenyl-1,2,4-triazine-4,4'-disulfonic acid Na-salt)  
C<sub>20</sub>H<sub>13</sub>N<sub>4</sub>O<sub>6</sub>S<sub>2</sub>·Na M<sub>r</sub> 492.5 ♦ CAS [69898-45-9]



**WARNING**  
H315-H319-H335 ♦ EINECS 274-196-3 ♦  
WGK 1 ♦ HS 29336980

Specific reagent for serum iron determination with high sensitivity. For automated instrumental analysis (1, 2). For determination of acidity of urine and serum (3).

Assay (titr.) min. 98.0 %

Ferrozine = trademark of Diagnostic Chemicals, Canada.

**References:**

1. Stookey, L.L. (1970) Anal. Chem. **42**, 779-81
2. Carter, P. (1971) Anal. Biochem. **40**, 450-58
3. Butts, W.C. & Mulviggill, H.J. (1975) Clin. Chem. **21**, 1493-7

Cat.No.	Size
21326.02	5 g

**Fibronectin (human) lyophil. analytical grade**

(HFN)  
M<sub>r</sub> ca. 450 000 ♦ CAS [86088-83-7]

EINECS 289-149-2 ♦ WGK - ♦ HS 35040090  
Storage temperature +2 °C to +8 °C

Enhances cell-cell and cell-substratum adhesion of transformed cells whereby a significant alteration of cellular morphology towards the normal phenotype is observed (1, 2).

Purity (SDS electrophoresis) > 90.0 %

**References:**

1. Ali, I.U. et al. (1977) Cell **11**, 115-26
2. Millis, A.J.T. & Hoyle, M. (1978) Nature **271**, 668-9
3. **Review:**  
Kleinman, H.K. et al. (1987) Anal. Biochem. **166**, 1-13

Cat.No.	Size
21370.02	1 mg

**FICOLL™ 400**

M<sub>r</sub> 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

Suited for preparation of continuous and discontinuous density gradients. For stabilization of membrane-bound particles, isolation of lymphocytes. Dialyzable material (including NaCl) max. 1 %. Better osmotic properties than sucrose, it preserves functional and morphological integrity and does not penetrate biological membranes.

FICOLL™ 400 is a neutral, highly branched, hydrophilic polymer of sucrose which dissolves readily in aqueous solution. Concentrations up to 50 % (w/v), covering a density range up to 1.2 g/ml, can be obtained without exceeding normal osmolarity.

FICOLL = trademark of GE Healthcare companies.

**References:**

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.15, 6.12)

Cat.No.	Size
21373.02	50 g

### ■ 1 ml FliQ Column

HS 38220000

Empty 1 ml FPLC chromatography column. Both ends of the FliQ columns have 10.32 UNF threads which fit all common chromatography instruments. Pack your own resin into these columns. Separate your proteins using an FPLC, HPLC, low pressure pump or a syringe. Use your own resins or use our own high capacity, high flow rate resins e.g. Protein A Agarose, Protein G Agarose, Ni-Superflow, Resin.

#### Specifications

Bead volume: 1 ml resin  
Simple packing procedure  
Universal 10.32 UNF threads  
Compatible with FPLC & HPLC  
Flow rate: 0.5 to 2 ml/min  
Stability: pH 2 - 14  
Max. pressure: 70 psi (5 bar)  
10.32 packing connector sold separately (cat. no. 42282.01)

Cat.No.	Size
42278.01	1 piece

### ■ 5 ml FliQ Column

HS 38220000

Empty 5 ml FPLC chromatography column. Both ends of the FliQ columns have 10.32 UNF threads which fit all common chromatography instruments. Pack your own resin into these columns. Separate your proteins using an FPLC, HPLC, low pressure pump or a syringe. Use your own resins or use our own high capacity, high flow rate resins e.g. Protein A Agarose, Protein G Agarose, Ni-Superflow, Resin.

#### Specifications

Bead volume: 5 ml resin  
Simple packing procedure  
Universal 10.32 UNF threads  
Compatible with FPLC & HPLC  
Flow rate: 0.5 to 2 ml/min  
Stability: pH 2 - 14  
Max. pressure: 42 psi (3 bar)  
10.32 packing connector sold separately (cat. no. 42282.01)

Cat.No.	Size
42279.01	1 piece

### ■ 10 ml FliQ Column

HS 38220000

Empty 10 ml FPLC chromatography column. Both ends of the FliQ columns have 10.32 UNF threads which fit all common chromatography instruments. Pack your own resin into these columns. Separate your proteins using an FPLC, HPLC, low pressure pump or a syringe. Use your own resins or use our own high capacity, high flow rate resins e.g. Protein A Agarose, Protein G Agarose, Ni-Superflow, Resin.

#### Specifications

Bead volume: 10 ml resin  
Simple packing procedure  
Universal 10.32 UNF threads  
Compatible with FPLC & HPLC  
Flow rate: 0.5 to 2 ml/min  
Stability: pH 2 - 14  
Max. pressure: 42 psi (3 bar)  
10.32 packing connector sold separately (cat. no. 42282.01)

Cat.No.	Size
42280.01	1 piece

### ■ Fluorescence Gel Imager

HS 90278017

Bio-1000F is an innovative, user-friendly and cost-effective fluorescence gel imager that integrates image capture, gel preview, and gel extraction essential for routine nucleic acid and protein gel electrophoresis. With the combination of high-sensitivity CCD system and Blue-LED illuminators, Bio-1000F is compatible with all EtBr-alternative fluorescent stains and provides the publication-quality image up to 0.04 ng per band, significantly enhancing the fluorescent signal expression over other gel documentation systems dependent on UV and Blue-LED light sources. Moreover the scanner allows to detect proteins pre-labelled with SERVA Lightning Red and other fluorescent dyes that are excited with blue light and emitting above 520 nm with a sensitivity of about 1 ng protein/band (for SERVA Lightning Red).

Incorporating removable filter plate and intuitive MiBioFluo software interface, users can visualize banding pattern and conduct gel extraction directly on Bio-1000F for more convenient operation without movement between trans-illuminator and gel imager. The compact design especially enables Bio-1000F to fit in crowded laboratory space. Bio-1000F features an integrated, environmental friendly, and ultra-sensitive gel imager for researchers, dedicated to improve the laboratory safety and gel electrophoresis process efficiency.



Cat.No.	Size
BIO-1000F	1 piece

### □ Fluorescence labelling

see 43402 SERVA PRiME™ Lightning Red page 111

### □ Fluorescence labelling

see 43400 SERVA HPE™ Lightning Red, page 107

### □ Fluorescence staining

see 43386 SERVA Purple, page 112

### ■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 25 cm x 3 m

HS 39219090

Fluorobind membranes are based on PVDF-type chemistry and show an excellent protein binding capacity. They are not only suitable for all standard applications in protein analysis, but as well for special applications like fluorescence detection and protein sequencing. The pore size of 0.2 µm is ideal for blotting of proteins of lower molecular weight and peptides, but can as well be used for larger proteins. The membranes feature a high sensitivity with low background in all common detection systems. The high mechanical stability facilitates handling and allows multiple stripping of the membrane and harsh washing conditions.

Cat.No.	Size
42571.01	1 roll



**Fluoromount for microscopy**



WARNING  
H226-H315-H319-H335-H411 ♦ GGVSE/  
ADR 3 III UN1866 ♦ IATA 3 III UN1866 ♦ WGK 2 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy, based on polyacrylate in xylene.

Refractive index (20 °C) 1.454 - 1.457

**References:**

- Gurr, E. (1951) J.R. Nav. Med. Serv. **37**, 133-40
- De Jong, J.H. (1978) Stain Technol. **53**, 169-72

Cat.No.	Size
21644.01	50 ml

**Fluoromount W for microscopy, aqueous solution**

WGK 2S ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy. Ideal for F.I.T.C.

Cat.No.	Size
21634.01	50 ml

**FocusGel 3-10 Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 3-10.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface. Samples are applied to the gel using applicator strips.

Cat.No.	Size
43327.01	5 gels

**FocusGel 3-10 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 3-10, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43335.01	5 gels

**FocusGel 3-7 Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 3-7.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface. Samples are applied to the gel using applicator strips.

Cat.No.	Size
43328.01	5 gels

**FocusGel 3-7 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 3-7, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43387.01	5 gels

**FocusGel 4-5 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 4-5, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43332.01	5 gels

**FocusGel 4-6 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 4-6, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43334.01	5 gels

**FocusGel 6-11 24S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 6-11, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43329.01	5 gels

**FocusGel 6-11 40S Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 6-11, 40 slots for 12 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

Cat.No.	Size
43333.01	5 gels

**FocusGel 6-9 24S HEM Size: 250 x 115 x 0.65 mm**

HS 38220000

Ready-to-use horizontal gels for IEF, pH 6-9, 24 slots for 25 µl.

0.65 mm thick precast polyacrylamide gel, bound to GEL-FIX™ support film for isoelectric focusing. The gels are non-toxic, because catalysts and other non-polymerized substances like acrylamide monomers are removed from the matrix. They contain a special SERVALYT™ cocktail designed to achieve an optimal pH gradient. Electrode solutions and electrode strips are not required, the electrodes are placed directly on the gel surface.

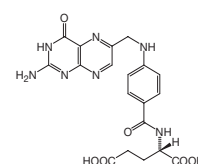
Cat.No.	Size
43330.01	5 gels

**Folic acid cryst. research grade, Ph. Eur.**

(Pteroylmonoglutamic acid; Folsäure)  
C<sub>19</sub>H<sub>19</sub>N<sub>7</sub>O<sub>6</sub> ♦ M<sub>r</sub> 441.4 ♦ CAS [59-30-3]

EINECS 200-419-0 ♦ WGK 1L ♦ HS 29362900

Assay (HPLC) 96.0 - 102.0 %



Cat.No.	Size
21700.02	25 g



### Formic acid 99 % for LC-MS

CAS [64-18-6]



DANGER

H226-H302-H314-H331 ♦ EG-Index 607-001-00-0  
 ♦ GGVSE/ADR 8 II UN1779 ♦ IATA 8 II UN1779 ♦  
 EINECS 200-579-1 ♦ WGK 1 ♦ HS 29151100

Additive for eluent phase for LC-MS.

Assay (acidimetric) min. 99.0 %  
 Refractive index (20 °C) 1.3709 – 1.3719  
 Residue on evaporation max. 10 ppm

#### Transmittance

260 nm min. 20 %  
 270 nm min. 85 %

#### Metal Compounds

Al max. 0.05 ppm  
 Mg max. 0.1 ppm  
 Fe max. 0.2 ppm  
 Ca max. 0.2 ppm  
 K max. 0.1 ppm  
 Na max. 0.5 ppm

Cat.No.	Size
45640.01	50 ml

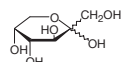
### D-Fructose research grade, Ph. Eur.

(Levulose)

C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> ♦ M<sub>r</sub> 180.2 ♦ CAS [57-48-7]

EINECS 200-333-3 ♦ WGK 1 ♦ HS 17025000

[α] 20 ° C/D (c=10 % in water) -93.5 to -91.0 °C



Cat.No.	Size
21830.02	1 kg

### Fuchsin acid pure

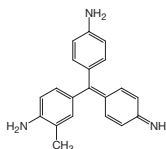
(Acid Violet 19; Rubin S; Fuchsin trisulfonate)

C.I. 42685 ♦ C<sub>20</sub>H<sub>17</sub>N<sub>3</sub>Na<sub>2</sub>O<sub>9</sub>S<sub>3</sub> ♦ M<sub>r</sub> 585.5 ♦

CAS [3244-88-0]

WGK 2L ♦ HS 32041200

Fuchsin acid is used for staining connective tissues in histological sections with trichrome staining acc. to Mallory and van Gieson and as indicator pH 12 - 14.

λ<sub>max</sub>. 0.001 % in H<sub>2</sub>O 546 ± 4 nm

Cat.No.	Size
34597.01	25 g

### Fungicidin

see 29870 Nystatin min. 4 400 units/mg, page 79

### G 418 solution sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

Stock solution, for cell culture, biochemistry and molecular biology.

Formulated to contain 50 mg/ml G 418 base in deionized water.

50 mg G 418 base are approx. 70 mg G 418 sulfate (based on dry weight).

The working concentration has to be established for every cell type.

Bacteria and algae require 5 µg/ml or less while animal cells may require 300 - 500 µg/ml.

G 418 is an aminoglycoside antibiotic from *Micromonospora rhodorangea*.

Used for the selection and maintenance of eukaryotic cells expressing the neomycin resistance gene (neo). G418 blocks polypeptide synthesis by inhibiting the elongation step. It is similar in structure to gentamycin B1 but active against both bacteria and eukaryotes.

Cat.No.	Size
47995.01	20 ml

### G 418 sulfate

(Geneticin®)

C<sub>20</sub>H<sub>40</sub>N<sub>4</sub>O<sub>10</sub> · 2H<sub>2</sub>SO<sub>4</sub> ♦ M<sub>r</sub> 692.7 ♦ CAS [108321-42-2]

DANGER

H317-H334 ♦ WGK 3 ♦ HS 29419000

Aminoglycoside antibiotic from

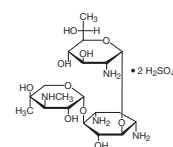
*Micromonospora rhodorangea*. Used for the selection and maintenance of eukaryotic cells expressing the neomycin resistance gene (neo). G418 blocks polypeptide synthesis by inhibiting the elongation step. It is similar in structure to gentamycin B1 but active against both bacteria and eukaryotes.

Potency min. 650 µg/mg

Geneticin = trademark of LTI.

#### References:

- Southern, P.J. & Berg, P. (1982) J. Mol. Appl. Genetics **1**, 327-41
- Bar-Nun, S. et al. (1983) Biochim. Biophys. Acta. **741**, 123-7
- Hadfield, C. et al. (1990) Curr. Genet. **18**, 303-13
- Wang, X. et al. (1996) Biotechnol. Bioeng. **49**, 45-51
- Kunik, T. et al. (2001) PNAS **98**, 1871-6
- D'Artagnan Villalba, J. et al. (2007) Microbiology **153**, 3852-63
- Gietz, R.D. & Schiestl, R.H. (2007) Nature Protocols **2**, 31-4



Cat.No.	Size
49418.03	1 g

### D-Galactose research grade

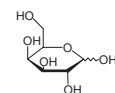
C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> ♦ M<sub>r</sub> 180.16 ♦ CAS [59-23-4]

EINECS 200-416-4 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC) min. 98.0 %

MP 165 - 172 °C

[α] 20 °C/D (c=10 % in water) + 78 ° to + 81.5 °



Cat.No.	Size
22020.02	500 g

### Gaskets 0.5 Size 264 x 126 mm

HS 39269097

Silicone, U-shaped, 0.5 mm thick, for cuvette techniques.

Cat.No.	Size
42929.01	6 pieces

### Gaskets 1.0 Size 264 x 126 mm

HS 39269097

Silicone, U-shaped, 1.0 mm thick, for cuvette techniques.

Cat.No.	Size
42930.01	6 pieces

### GE 100

see 21045 Glycid ether 100, page 52

### GEL-FIX™ for PAG Size: 245 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

GEL-FIX = trademark of SERVA

Cat.No.	Size
42980.01	36 sheets

### GEL-FIX™ for PAG Size: 260 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42999.01	36 sheets

### GEL-FIX™ for PAG Size: 260 mm x 203 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42961.01	36 sheets

■ **GEL-FIX™ for PAG** Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42993.01	36 sheets

■ **GEL-FIX™ for PAG** Size: 265 mm x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42983.01	36 sheets

■ **GEL-FIX™ for PAG** Size: 50 m x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42966.01	1 roll

■ **GEL-FIX™ for PAG** Size: 50 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42968.01	1 roll

■ **GEL-FIX™ for PAG** Size: 200 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size
42996.01	1 roll

■ **GEL-FIX™ for Agarose** Size: 80 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

*GEL-FIX is a trademark of SERVA.*

Cat.No.	Size
42998.01	36 sheets

■ **GEL-FIX™ for Agarose** Size: 125 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size
42997.01	36 sheets

■ **GEL-FIX™ for Agarose** Size: 258 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size
42982.01	36 sheets

■ **GEL-FIX™ for Agarose** Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size
42981.01	36 sheets

■ **GEL-FIX™ Covers** Size: 245 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

*GEL-FIX is a trademark of SERVA.*

Cat.No.	Size
42957.01	36 sheets

■ **GEL-FIX™ Covers** Size: 265 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size
42970.01	36 sheets

■ **GEL-FIX™ Covers** Size: 265 mm x 193 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size
42969.01	36 sheets

■ **GEL-FIX™ Covers** Size: 280 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size
42995.01	36 sheets

■ **Gelatin Ph. Eur.**

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Special quality for bacteriology. A 5 % solution liquefies at 25 - 30 °C and begins to set at 19 - 25 °C.

Cat.No.	Size
22151.02	500 g

■ **Gelatin capsules No. 0** for electron microscopy

HS 35030010

Used as an embedding mold for water miscible resins, or resins which need to be cured by transmitted light.

Volume	0.7 cm <sup>3</sup>
Length	21.8 mm
Diameter	7.7 mm

Cat.No.	Size
43520.02	500 pieces

■ **Gelatin, liquid**

M<sub>v</sub> ca. 60 000 ♦ CAS [9000-70-8]

HS 35030080

From fish skin. Solids content 44.0 - 46.0 %. Contains methyl-/propyl-PHB as preservative. Specially prepared and purified gelatin. Supplied as a pourable liquid. Completely water soluble, even at room temperature and at high concentrations. Acts as a protective colloid.

Cat.No.	Size
22156.01	100 ml

□ **Gelfiltration Columns**

see 42130 CentriPure MINI Spin Columns Desalt Z-25, page 24

### ■ Gelrite®

(Agar Substitute; K9A-40; Gellan-Gum)  
CAS [71010-52-1]

EINECS 275-117-5 ♦ WGK 1 ♦ HS 39131000

Highly-purified polysaccharide produced by bacteria. Useful alternative to agar for the in vitro culture of many plants and in microbiological culture media.

High salt concentrations increase gelling temperature and polymerisation is enhanced in the presence of bivalent cations.

- ♦ Yields very clear gels
- ♦ Consistent quality from lot to lot
- ♦ Economical, because only about half the amount of agar is required
- ♦ Reduced gel preparation time
- ♦ Stable at high temperature and withstands repeated autoclaving

Gelrite = registered trademark of Merck & Co., Inc. USA

#### References:

1. Shungu, D. et al. (1983) Appl. Environm. Microbiol. **46**, 840-5
2. Sanderson, G. & Clark, R. (1983) Food Technology **37**, 63-70

Cat.No.	Size
22168.01	250 g
22168.02	1 kg

### □ Geneticin®

see 49418 G 418, page 47

### ■ Gentamycin Solution sterile filtered



DANGER

H317-H334-H361D ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Formulated to contain 50 mg/ml gentamycin base in deionized water. 50 mg gentamycin base correspond to approx. 50 000 units of gentamycin and are approx. 80 mg gentamycin sulfate.

Gentamycin is an aminoglycoside antibiotic complex from *Micromonospora purpurea* and consists of closely related compounds: gentamycin C<sub>1</sub>, C<sub>1a</sub>, C<sub>2</sub>, C<sub>2a</sub> and C<sub>2b</sub>. Inhibits bacterial protein synthesis by binding to the ribosomal 30S subunit and causing misreading of mRNA (in a similar way as streptomycin).

Broad spectrum antibiotic which inhibits growth of many gram positive and gram negative bacteria including strains which are resistant to chloramphenicol, kanamycin or tetracycline. Frequently used in cell culture, often in combination with amphotericin B, nystatin or penicillin G.

Cat.No.	Size
47991.01	20 ml

### ■ Gentamycin sulfate research grade, Ph. Eur.

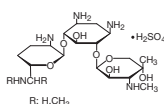
(Gentamicin sulfate)  
CAS [1405-41-0]



DANGER

H317-H334-H361 ♦ EINECS 215-778-9 ♦

WGK 1 ♦ HS 29419000



Min. 590 U/mg. Aminoglycoside antibiotic complex from *Micromonospora purpurea*.

Consists of closely related compounds: gentamycin C<sub>1</sub>, C<sub>1a</sub>, C<sub>2</sub>, C<sub>2a</sub> and C<sub>2b</sub>. Inhibits bacterial protein synthesis by binding to the ribosomal 30S subunit and causing misreading of mRNA (in a similar way as streptomycin). Broad spectrum antibiotic which inhibits growth of many gram positive and gram negative bacteria including strains which are resistant to chloramphenicol, kanamycin or tetracycline. Frequently used in cell culture, often in combination with amphotericin B, nystatin or penicillin G (1,3).

#### References:

1. Watts, J.W. & King, J.M. (1973) Planta **113**, 271-7
2. Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotics chemistry Vol. I Chichester: Horwood, pp. 1-90
3. Eichholtz, D.A. et al. (1979) Plant Physiol. **63**, Abstr. 753
4. Lancini, G. & Parenti, F. (1982) Antibiotics; Springer, New York
5. Nakamura, T. et al. (1991) J. Biol. Chem. **266**, 19432-7
6. Stubbs, A.C. et al. (2001) Nature Medicine **7**, 625-9
7. Manevich, Y. et al. (2002) PNAS **99**, 11599-604
8. Richard, J.P. et al. (2005) J. Biol. Chem. **280**, 15300-6

Cat.No.	Size
22185.01	1 g
22185.02	5 g
22185.03	25 g

### □ Gentian Violet 10B

see 27335 Crystal Violet, page 32

### ■ GermDecon



DANGER

H225-H319-H336 ♦ GGVSE/ADR 3 II UN1219 ♦

IATA 3 II UN1219 ♦ HS 38089490

Wide disinfectant for instruments and surfaces.

To avoid cross-contamination or infection, disinfection of work places and instruments, especially in laboratories working with biological samples, is mandatory.

GermDecon is an isopropyl alcohol based, non-corrosive and non-carcinogenic solution which can be easily sprayed on all surfaces without leaving any traces.

It is among others active against: *Bacillus subtilis*, *Candida albicans*, *Clostridium*, *Coliforms*, *E. coli*, *Enterococcus faecalis*, *Listeria*, *MRSA*, *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Salmonella*, *Staphylococcus aureus*, *Streptococcus pyogenes* and *fungi*.

Supplied in a spray bottle (750 ml) or as refill (1000 ml).

Cat.No.	Size
34207.01	750 ml
34207.02	1.000 ml

### □ Glacial acetic acid

see 45633 Acetic acid 100 %, page 2

### ■ Glass Plate, Notched 3.0 mm, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

For BlueVertical™ PRiME™ Casting Stand BV-104-CS.

Cat.No.	Size
BV-GP-N	4 pieces

### ■ Glass Plate, Plain 3.0 mm, with 1 mm Spacer, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

For BlueVertical™ PRiME™ Casting Stand BV-104-CS.

Cat.No.	Size
BV-GP-P1.0	4 pieces

### ■ Glass Plate, Plain 3.0 mm, with 1.5 mm Spacer, for BlueVertical™ PRiME™ Casting Stand

HS 90272000

For BlueVertical™ PRiME™ Casting Stand BV-104-CS.

Cat.No.	Size
BV-GP-P1.5	4 pieces

### ■ Glass Plates

HS 70031990

Size: 265 x 128 x 3 mm, supports for gel sheets for casting of horizontal gels.

Cat.No.	Size
42952.01	4 pieces

### ■ Glass wool, silanized research grade



WARNING

H315-H319-H335 ♦ HS 70199000

A very soft material for plugging columns in gas and liquid chromatography.

Cat.No.	Size
22367.01	10 g
22367.03	50 g

**■  $\gamma$ -Globulin bovine**

$M_r$  150000  $\blacklozenge$  CAS [9007-83-4]  
EINECS 232-706-1  $\blacklozenge$  WGK 1  $\blacklozenge$  HS 30021091  
Storage temperature +2 °C to +8 °C

Cohn-Fraction II. Highly purified. Soluble in saline and standard buffers. Suitable to reduce non-specific adsorption of antibody in immunoassay systems. Starting material for the isolation of IgG subclasses.

Assay (CAF) 96.0 - 100.0 %  
pH (7 % solution) 6.8 - 7.2  
Moisture (KF) max. 5.0 %

Cat.No.	Size
22550.01	5 g
22550.02	25 g

**□  $\alpha$ -D-Glucopyranosyl- $\alpha$ -D-glucopyranoside**

see 36770 D-Trehalose, page 140

**□ 2-O- $\beta$ -D-Glucopyranosyl- $\alpha$ -D-glucose**

see 35208  $\alpha$ -Sophorose, page 128

**■  $\alpha$ -D-Glucose anhydrous analytical grade**

(Dextrose;  $\alpha$ -D-Glucopyranose)  
 $C_6H_{12}O_6$   $\blacklozenge$   $M_r$  180.16  $\blacklozenge$  CAS [50-99-7]

EINECS 200-075-1  $\blacklozenge$  WGK 1L  $\blacklozenge$  HS 17023050

Assay (titr.) min. 99.5 %  
Water (loss on drying) max. 0.5 %



Cat.No.	Size
22700.01	100 g
22700.02	1 kg

**■  $\alpha$ -D-Glucose monohydrate analytical grade, Ph. Eur.**

(Dextrose)  
 $C_6H_{12}O_6 \cdot H_2O$   $\blacklozenge$   $M_r$  198.2  $\blacklozenge$  CAS [14431-43-7]

EINECS 200-075-1  $\blacklozenge$  WGK 1L  $\blacklozenge$  HS 17023050

For biochemistry, microbiology and cell culture.

$[\alpha]_{20}^{20}$  °C/D +52.5° to +53.3°  
Water (KF) 7.0 - 9.5 %



Cat.No.	Size
22720.01	1 kg
22720.02	10 kg

**■ Glucose-6-phosphate dehydrogenase from yeast ca. 140 U/mg protein suspension**

(G6P-DH)  
EC 1.1.1.49  $\blacklozenge$   $M_r$  ca. 102 000  $\blacklozenge$  CAS [9001-40-5]

EINECS 232-602-6  $\blacklozenge$  HS 35079090  
Storage temperature +2 °C to +8 °C

In 3.2 M ammonium sulfate; pH 6.0.  
1 mg corresponds to approx. 0.2 ml.

**Unit definition:** 1 U catalyzes the oxidation of 1  $\mu$ mole glucose-6-phosphate per minute at 25 °C, pH 7.8 in the presence of NADP<sup>+</sup> (equivalent to the reduction of 1  $\mu$ mol NADP<sup>+</sup> per minute) (1).

**Extraneous activities:** 6-PGDH, PGLuM each 0.01 %; hexokinase max. 0.02 %; glutathione reductase max. 0.05 %; PGI max. 0.002 %; creatine kinase max. 0.001 %.

**References:**

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. Vol. 2, p. 202-3

Cat.No.	Size
22820.01	1 mg

**■ Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.**

EC 1.1.3.4  $\blacklozenge$   $M_r$  ca. 160 000  $\blacklozenge$  CAS [9001-37-0]



DANGER  
H334  $\blacklozenge$  EINECS 232-601-0  $\blacklozenge$  WGK 1L  $\blacklozenge$  HS 35079090  
Storage temperature -15 °C to -25 °C \*

Glucose oxidase is used in the enzymatic determination of D-glucose in solution. Glucose oxidase oxidizes  $\beta$ -D-glucose to D-gluconolactate and hydrogen peroxide. Horseradish peroxidase is then used as the coupling enzyme for glucose determination. Although glucose oxidase is specific for  $\beta$ -D-glucose, solutions of D-glucose can be quantified as  $\alpha$ -D-glucose will mutarotate to  $\beta$ -D-glucose as the  $\beta$ -D-glucose is consumed by the enzymatic reaction.

**Unit definition:** 1 U catalyzes the oxidation of 1  $\mu$ mole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (2).

**References:**

1. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
2. Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. Vol. **6**, 178-85
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) Vol. **IX**, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-321

Cat.No.	Size
22739.02	500 mg

**■ Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.**

(GOD)  
EC 1.1.3.4  $\blacklozenge$   $M_r$  ca. 160 000  $\blacklozenge$  CAS [9001-37-0]



DANGER  
H334  $\blacklozenge$  EINECS 232-601-0  $\blacklozenge$  WGK 1L  $\blacklozenge$  HS 35079090  
Storage temperature -15 °C to -25 °C \*

Glucose oxidase is used in the assay of D-glucose (1). Ca. 300 U/mg protein.

**Unit definition:** 1 U catalyzes the oxidation of 1  $\mu$ mole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (1).

**Extraneous activities:** Amylase, saccharase and maltase less than 0.05 %; GOD/catalase min. 2000.

**References:**

1. Kunst, A. et al. (1984) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. **6**, p. 178-85
2. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) Vol. **IX**, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size
22778.01	100 mg
22778.02	500 mg

**■ Glutamate dehydrogenase from bovine liver ca. 100 U/mg protein solution**

(L-Glutamate: NAD(P)<sup>+</sup> oxidoreductase (deaminating))  
EC 1.4.1.3  $\blacklozenge$   $M_r$  ca. 350 000



DANGER  
H334  $\blacklozenge$  WGK 1  $\blacklozenge$  HS 35079090  
Storage temperature +2 °C to +8 °C

For the determination of L-glutamate, ammonia and 2-oxoglutaric acid (1, 2). Suitable for urea determination in conjunction with urease (cat. no. 37799). In 50 % glycerol.

25 mg correspond to approx. 1 ml, 100 mg correspond to approx. 4 ml.

**Unit definition:** 1 U catalyzes the reductive amination of 1  $\mu$ mole 2-oxoglutarate per minute at 25 °C, pH 7.3 in the presence of ADP.

**Activity in other units:** ca. 40 U/mg protein (1 U causes the transformation of 1  $\mu$ mole 2-oxoglutarate per minute at 25 °C and pH 7.3 under assay conditions not containing ADP).

**Extraneous activities:** LDH, MDH each max. 0.01 %; Ammonium ions less than 0.001  $\mu$ mole per unit.

**References:**

1. Schmidt, E. & F.W.. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. Vol. **3**, p. 216-27
2. Lund, P. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. **8**, p. 357-63

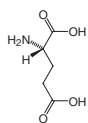
Cat.No.	Size
22904.01	25 mg
22904.02	100 mg

**L-Glutamic acid** research grade, Ph. Eur.

(L-2-Aminoglutaric acid; Glu)  
 $C_5H_9NO_4$  ♦  $M_r$  147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ WGK 1 ♦ HS 29224200

Assay (titr.) 98.5 - 100.5 %  
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
23000.01	250 g

**L-Glutamic acid-5-amide**

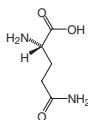
see 47204 L-Glutamine, page 51

**L-Glutamine** analytical grade, USP

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)  
 $C_5H_{10}N_2O_3$  ♦  $M_r$  146.2 ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 99.0 - 101.0 %  
 Heavy metals (Pb) max. 5 ppm



Cat.No.	Size
22942.02	100 g
22942.03	250 g

**L-Glutamine** cell culture grade

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)  
 $C_5H_{10}N_2O_3$  ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ HS 29224985

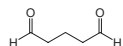
Assay (titr.) min. 99.0 %  
 Endotoxin  $\leq$  50.0 E.U./g  
 Loss on drying max. 0.2 %  
 Chloride (Cl) max. 200 ppm  
 Sulfate ( $SO_4$ ) max. 200 ppm  
 Heavy metals (as Pb) max. 10 ppm  
 Iron (Fe) max. 10 ppm

Cat.No.	Size
47204.03	1 kg

**Glutaraldehyde 25 % solution in water**

for electron microscopy, standard grade

(Glutaric dialdehyde)  
 $C_5H_8O_2$  ♦  $M_r$  100.13



**DANGER**  
 H302-H314-H317-H331-H334-H335  
 -H400 ♦ MAK/TRK 0.1 ml/m<sup>3</sup>, 0.42 mg/m<sup>3</sup>

for glutaraldehyde ♦ GGVE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

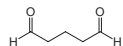
Refractive index (20 °C) 1.3690 - 1.3755

Cat.No.	Size
23115.01	250 ml

**Glutaraldehyde 25 % solution in water**

for electron microscopy, high purity

(Glutaric dialdehyde)  
 $C_5H_8O_2$  ♦  $M_r$  100.13



**DANGER**  
 H302-H314-H317-H331-H334-H335  
 -H400 ♦ MAK/TRK 0.1 ml/m<sup>3</sup>, 0.42 mg/m<sup>3</sup>

for glutaraldehyde ♦ GGVE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

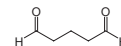
Purification index (A235/A280, 1 % in water) max. 0.5

Cat.No.	Size
23114.01	25 ml
23114.02	10 x 5 ml

**Glutaraldehyde 50 % solution in water**

for electron microscopy

(Glutaric dialdehyde)  
 $C_5H_8O_2$  ♦  $M_r$  100.13



**DANGER**  
 H301-H314-H317-H331-H334-H335  
 -H400 ♦ MAK/TRK 0.1 ml/m<sup>3</sup>, 0.42 mg/m<sup>3</sup>

for glutaraldehyde ♦ GGVE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.410 - 1.421

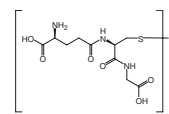
Cat.No.	Size
23116.01	25 ml
23116.02	10 x 5 ml

**Glutaric dialdehyde**

see 23114 Glutaraldehyde 25 % solution in water, page 51

**L-Glutathione (oxidized form)** cryst. research grade

(GSSG)  
 $C_{20}H_{32}N_6O_{12}S_2$  ♦  $M_r$  612.64 ♦ CAS [27025-41-8]



EINECS 248-170-7 ♦ WGK 1 ♦ HS 29309016

Storage temperature +2 °C to +8 °C

L-Glutathione oxidized (GSSG) is the dimeric form of glutathione (GSH). In vivo GSSG is reduced by the NADPH-dependent enzyme glutathione reductase. The ratio of GSH to GSSG is often used to measure the level of oxidative stress in cells, with higher concentrations of GSSG implying more oxidative stress.

Assay (HPLC) min. 98.0 %  
 $[\alpha]$  20 °C/D (c=4 % in water) -106.0 ° to -96.0 °

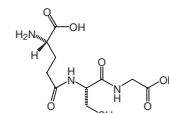
**References:**

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60

Cat.No.	Size
23130.01	1 g
23130.02	5 g

**L-Glutathione (reduced form)** cryst. research grade

(GSH;  $\gamma$ -L-Glutamyl-L-cysteinylglycine)  
 $C_{10}H_{17}N_3O_6S$  ♦  $M_r$  307.3 ♦ CAS [70-18-8]



EINECS 200-725-4 ♦ WGK 2L ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Suitable to elute GST-tagged proteins from glutathione-agarose beads.

L-Glutathione reduced (GSH) is an antioxidant that helps to protect cells from reactive oxygen species such as free radicals and peroxides. By acting as an electron donor, glutathione reduces any disulfide bond formed within cytoplasmic proteins to cysteines.

Assay (CE) min. 97.5 %  
 MP 182 - 192 °C  
 $[\alpha]$  20 °C/D (c=4 % in water) -15.5 ° to -17.5 °

**References:**

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60

Cat.No.	Size
23150.02	5 g
23150.03	25 g
23150.04	100 g

**Glutathione Agarose Resin**

(GST-Tag Purification)  
 HS 38220000

The resin permits rapid, mild and highly selective purification of GST fusion proteins with a one step procedure. The recovery rate is more than 95 % and the mild conditions retain the biological activity of the isolated proteins. Handling is easy and identical to standard protocols of other manufacturers, therefore there is no need to change established protocols. Suitable for isolation of small and large proteins tagged with GST in batch or column purifications.

Binding capacity: > 8 mg recombinant GST/ml gel.

Cat.No.	Size
42172.01	10 ml
42172.02	100 ml



□ **Glycerin**

see 23176 Glycerol from plant, page 52

■ **Glycerol from plant Ph. Eur.**

(Glycerin)

C<sub>3</sub>H<sub>8</sub>O<sub>3</sub> ♦ M<sub>r</sub> 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Suitable for a wide range of applications:

- ♦ Supplement in cell culture
- ♦ Stabilizer of proteins
- ♦ Component of sample buffer for polyacrylamide gel electrophoresis
- ♦ Aid in casting gradient gels

In addition, glycerol can be used in pharmaceutical formulations and as an emollient, solvent, sweetening agent.

Assay (titr.) min. 98.0 % - 101.0 %  
 Heavy metals (Pb) max. 5 ppm  
 Refractive index 1.470 - 1.475



Cat.No.	Size
23176.01	1 L

■ **Glycerol from plant 87 % Ph. Eur.**

C<sub>3</sub>H<sub>8</sub>O<sub>3</sub> ♦ M<sub>r</sub> 92.09 ♦ CAS [56-81-5]

HS 29054500

Suitable for a wide range of applications:

- ♦ Supplement in cell culture
- ♦ Stabilizer of proteins
- ♦ Component of sample buffer for polyacrylamide gel electrophoresis
- ♦ Aid in casting gradient gels

In addition, glycerol can be used in pharmaceutical formulations and as an emollient, solvent, sweetening agent.

Refractive index 1.449 - 1.455

Cat.No.	Size
23177.01	1 L

■ **Glycerol from plant 87 % molecular biology grade**

C<sub>3</sub>H<sub>8</sub>O<sub>3</sub> ♦ M<sub>r</sub> 92.09 ♦ CAS [56-81-5]

HS 29054500

DNase/RNase not detected.

Suitable for a wide range of applications:



- ♦ Supplement in cell culture
- ♦ Stabilizer of proteins
- ♦ Component of sample buffer for polyacrylamide gel electrophoresis
- ♦ Aid in casting gradient gels

In addition, glycerol can be used in pharmaceutical formulations and as an emollient, solvent, sweetening agent.

Refractive index 1.449 - 1.455

Cat.No.	Size
39788.01	1 L

■ **Glycerol gelatin for microscopy**

  DANGER  
 H314-H341 ♦ WGK 1 ♦ HS 38220000

Aqueous mounting medium for microscopy and histology. Glycerol alters the hygroscopic property of gelatin and its permeability to water vapour.

Cat.No.	Size
23310.02	100 g

■ **Glycerol gelatin after Kaiser phenol-free**

HS 38220000

Universal aqueous slide mounting medium for microscopy. The recipe is according to the well-known Kaiser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative. Contains ca. 40 % glycerol and ca. 7 % gelatin.

Refractive index 1.44 - 1.48

Cat.No.	Size
23311.01	50 ml

■ **Glycid ether 100 for electron microscopy**

(1,2,3-Propanetriol glycidyl ether; GE 100; Epon 812)  
 M<sub>r</sub> average 306 ♦ CAS [90529-77-4]



WARNING  
 H302-H315-H319-H341-H361 ♦ EINECS 292-011-4 ♦  
 WGK 1L ♦ HS 39073000

Mixture of aliphatic di- and triepoxides. Epoxy resin of low viscosity (ca. 100-200 mPa-s at 25 °C) (1). Combination with ARALDITE® (2). With D.E.R.® 736 (3).

Epoxide equivalent 135 - 154 g/mol  
 Viscosity (25 °C) 100 - 200 mPa-s  
 Chlorine (total) 10 - 13 %

ARALDITE = registered trademark of Huntsman Advanced Materials Europe  
 D.E.R. = registered trademark of Dow Chemical Company

**References:**

1. Luft, J.H. (1961) J. Biophys. Biochem. Cytol. **9**, 409-14
2. Coulter, H.D. (1967) J. Ultrastruct. Res. **20**, 346-55
3. Kushida, H. (1967) J. Electron Microsc. **16**, 278-80

Cat.No.	Size
21045.01	100 ml
21045.02	500 ml

■ **Glycine electrophoresis grade**

(Aminoacetic acid; Glycocoll)

C<sub>2</sub>H<sub>5</sub>NO<sub>2</sub> ♦ M<sub>r</sub> 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Glycine is a component of Tris-Glycine (cat. no. 42530) and Tris-Glycine-SDS Running Buffers (cat. no. 42529) for polyacrylamide gel electrophoresis and as well of Towbin Buffer for Western Blots (cat. no. 42558).

Tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.) 98.5 - 101.0 %  
 Heavy metals (Pb) max. 10 ppm  
 Chloride (Cl) max. 70 ppm

Cat.No.	Size
23391.01	500 g
23391.02	1 kg
23391.03	5 kg

■ **Glycine analytical grade, Ph. Eur., USP**

(Aminoacetic acid; Glycocoll)



C<sub>2</sub>H<sub>5</sub>NO<sub>2</sub> ♦ M<sub>r</sub> 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %  
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
23390.02	500 g
23390.04	1 kg
23390.03	5 kg

■ **Glycogen from oyster research grade**

(C<sub>6</sub>H<sub>10</sub>O<sub>5</sub>)<sub>n</sub> ♦ CAS [9005-79-2]

EINECS 232-683-8 ♦ WGK - ♦ HS 39139000

Storage temperature +2 °C to +8 °C

Substrate for glycogenphosphorylase (EC 2.4.1.1). Suitable as a carrier molecule for DNA and RNA in precipitation reactions, replacing tRNA and sonicated DNA.

**References:**

1. Sutherland, E.W. (1955) Methods Enzymol. **1**, 215-22

Cat.No.	Size
23550.02	5 g

**Glycogen from oyster, solution 20 mg/ml**

molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C

DNase/RNase not detected. 20 mg/ml solution in redistilled water. Suitable as a carrier molecule for DNA and RNA, replacing tRNA and sonicated DNA.

**References:**

1. Sambrook, J. & Russell, D.W. (2001) Molecular Cloning, 3rd Edition, Cold Spring Harbor Laboratory Press (p 5.20)

Cat.No.	Size
39766.01	1 ml
39766.02	10 x 1 ml

**Gravity Blotter**

HS 90272000

The SERVA Gravity Blotter has been developed by SERVA to blot film-based IEF and SDS PAGE gels at high efficiency. When performing horizontal gel electrophoresis the gel layer has to be stabilized by a backing, either by glass or plastic. This backing has to be removed before transferring the separated proteins onto a membrane by tank or semy-dry blotting. During this laborious process, the gel could get damaged. The use of the Gravity Blotter renders separating gel and film backing unnecessary. The results are comparable to tank or semi-dry transfer methods.

The unit consists of a base plate with a transfer area of 14 x 29 cm. The pressure is provided by aluminum plates that are placed on top of the blotting stack. Transfer time is 4 h or overnight.



Cat.No.	Size
GB-14X29	1 piece

**GSH**

see 23150 L-Glutathione (reduced form), page 51

**Guanidine-HCl molecular biology grade**

CH<sub>5</sub>N<sub>3</sub>·HCl ♦ M<sub>r</sub> 95.5 ♦ CAS [50-01-1]

**!** WARNING  
H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦ WGK 1L ♦ HS 29252900

DNase/RNase not detected.

Assay min. 99.5 %  
A 1 cm/10 % in water  
260 nm max. 0.03  
280 nm max. 0.015

Cat.No.	Size
39558.02	500 g

**Guanidine-HCl research grade**

(Aminomethanamide)

CH<sub>5</sub>N<sub>3</sub>·HCl ♦ M<sub>r</sub> 95.5 ♦ CAS [50-01-1]

**!** WARNING  
H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦ WGK 1L ♦ HS 29252900

Reagent for reversible denaturation and renaturation of proteins.

Assay min. 99.0 %  
pH (6 M in water 20 °C) 4.5 - 7.0

Cat.No.	Size
24205.02	1 kg

**Guanidine-thiocyanate molecular biology grade**

CH<sub>5</sub>N<sub>3</sub>·HSCN ♦ M<sub>r</sub> 118.2 ♦ CAS [593-84-0]

**!** DANGER  
H302-H312-H314-H332-H412 ♦ EG-Index 615-004-00-3 ♦ GGVSE/ADR 8 III UN1759 ♦ IATA 8 III UN1759 ♦

EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

DNase/RNase not detected. Suitable for the isolation of RNA.

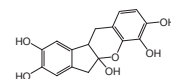
Assay (grav.) min. 98.5 %  
MP 115 - 122 °C  
A 1 cm/3 M in water  
280 nm max. 0.50  
300 nm max. 0.10

Cat.No.	Size
39577.01	250 g
39577.02	500 g

**Hematoxylin pure**

(Natural Black)

C.I.75290 ♦ C<sub>16</sub>H<sub>14</sub>O<sub>6</sub> ♦ M<sub>r</sub> 302.29 ♦ CAS [517-28-2]



**!** WARNING  
H315-H319-H335 ♦ EINECS 208-237-3 ♦ WGK 2L ♦ HS 32030010

Tested for use in Delafield-Heidenhain staining. Light-sensitive.

λ max. 0.004 % in acetonitrile 293 ± 3 nm  
Indicator pH 5.0 - 6.0

Cat.No.	Size
24420.01	25 g
24420.02	100 g

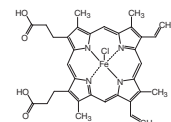
**Hemin cryst. research grade**

(Hemin chloride; Chlorohemin; Ferriprotoporphrin IX-chloride)

C<sub>34</sub>H<sub>32</sub>FeN<sub>4</sub>O<sub>4</sub>·Cl ♦ M<sub>r</sub> 652.0 ♦ CAS [16009-13-5]

EINECS 240-140-1 ♦ HS 32030090

Storage temperature +2 °C to +8 °C



Highly purified standard substance; specially developed for determination of hemoglobin (1). As labelling catalyst for luminescence immunoassay (2).

Assay (photometric) min. 98.0 %

**References:**

1. Wolf, H.U. et al. (1984) Clin. Chim. Acta **136**, 95-104  
2. Ikariyama, Y. & Suzuki, S. (1982) Anal. Chem. **54**, 1126-9

Cat.No.	Size
24410.01	1 g
24410.02	5 g

**Heparin sodium** research grade

WGK 1 ♦ HS 30019091

From porcine intestinal mucosa. Potency min. 180 IU/mg.

pH 1 % in water 5.5 - 8.0  
Loss on drying max. 8.0 %

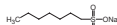
Cat.No.	Size
24590.01	500 mg
24590.02	2,5 g

**HEPES**

see 25245 N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid, page 61

**1-Heptanesulfonic acid·Na-salt** research grade

C<sub>7</sub>H<sub>15</sub>O<sub>3</sub>S·Na ♦ M<sub>r</sub> 202.25 ♦ CAS [22767-50-6]



WARNING

H315-H319-H335 ♦ EINECS 245-210-5 ♦ WGK 1 ♦ HS 29041000

Ion pairing reagent used in the HPLC analysis of proteins and peptides and capillary electrophoresis analysis of peptides.

Assay (titr.) min. 98.0 %  
A 1 cm/220 nm/0.005 M in water max. 0.08

Cat.No.	Size
24604.02	25 g

**Heteroauxins**

see 26181 Indole-3-acetic acid, page 63

**1 ml HiFliQ Co-NTA FPLC Column**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Cobalt-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 1 ml resin  
Column construction: Polypropylene  
Resin: Super Co-NTA Agarose  
Base matrix: 7.5 % cross-linked agarose  
Co-NTA capacity: 40 - 50 mg (per 1 ml resin)  
Flow rate: 1 ml/min  
Max. pressure: 0.5 MPa (72 psi)  
Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
Dimensions: 15 x 80 mm

Cat.No.	Size
42287.01	1 piece

**5 ml HiFliQ Co-NTA FPLC Column**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Cobalt-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
Column construction: Polypropylene  
Resin: Super Co-NTA Agarose  
Base matrix: 7.5 % cross-linked agarose  
Co-NTA capacity: 40 - 50 mg (per 1 ml resin)  
Flow rate: 1 - 5 ml/min (5 ml)  
Max. pressure: 0.5 MPa (72 psi)  
Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
Dimensions: 23 x 80 mm

Cat.No.	Size
42289.01	1 piece

**1 ml HiFliQ Co-NTA FPLC Columns**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Cobalt-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 1 ml resin  
Column construction: Polypropylene  
Resin: Super Co-NTA Agarose  
Base matrix: 7.5 % cross-linked agarose  
Co-NTA capacity: 40 - 50 mg (per 1 ml resin)  
Flow rate: 1 ml/min  
Max. pressure: 0.5 MPa (72 psi)  
Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
Dimensions: 15 x 80 mm

Cat.No.	Size
42288.01	5 pieces

**5 ml HiFliQ Co-NTA FPLC Columns**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Cobalt-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
Column construction: Polypropylene  
Resin: Super Co-NTA Agarose  
Base matrix: 7.5 % cross-linked agarose  
Co-NTA capacity: 40 - 50 mg (per 1 ml resin)  
Flow rate: 1 - 5 ml/min  
Max. pressure: 0.5 MPa (72 psi)  
Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
Dimensions: 23 x 80 mm

Cat.No.	Size
42290.01	5 pieces

### ■ 1 ml HiFliQ GST FPLC Column

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Glutathione coupled agarose resin for rapid affinity purification of Glutathione S-Transferase (GST)-tagged proteins under native conditions. Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Glutathione Agarose  
 Base matrix: Agarose  
 GST capacity: 10 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42291.01	1 piece

### ■ 1 ml HiFliQ GST FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Glutathione coupled agarose resin for rapid affinity purification of Glutathione S-Transferase (GST)-tagged proteins under native conditions. Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Glutathione Agarose  
 Base matrix: Agarose  
 GST capacity: 10 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42292.01	5 pieces

### ■ 5 ml HiFliQ GST FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Glutathione coupled agarose resin for rapid affinity purification of Glutathione S-Transferase (GST)-tagged proteins under native conditions. Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Glutathione Agarose  
 Base matrix: Agarose  
 GST capacity: 10 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42293.01	1 piece

### ■ 5 ml HiFliQ GST FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Glutathione coupled agarose resin for rapid affinity purification of Glutathione S-Transferase (GST)-tagged proteins under native conditions. Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Glutathione Agarose  
 Base matrix: Agarose  
 GST capacity: 10 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42294.01	5 pieces

### ■ 1 ml HiFliQ Ni-NTA FPLC Column

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Nickel-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC). Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Super Ni-NTA Agarose  
 Base matrix: 7.5 % cross-linked agarose  
 Ni-NTA capacity: 50 - 75 mg (per 1 ml resin)  
 Flow rate: 1 ml/min (1 ml)  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42283.01	1 piece

### ■ 1 ml HiFliQ Ni-NTA FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Nickel-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC). Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Super Ni-NTA Agarose  
 Base matrix: 7.5 % cross-linked agarose  
 Ni-NTA capacity: 50 - 75 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42284.01	5 pieces

**■ 5 ml HiFliQ Ni-NTA FPLC Column**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Nickel-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Super Ni-NTA Agarose  
 Base matrix: 7.5 % cross-linked agarose  
 Ni-NTA capacity: 50 - 75 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42285.01	1 piece

**■ 5 ml HiFliQ Ni-NTA FPLC Columns**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with pre-charged Nickel-NTA Agarose Resin for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC).

Available in 1 ml and 5 ml HiFliQ column sizes with high binding capacity and minimal ion leakage. Compatible with all common chromatography HPLC and FPLC instruments, and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Super Ni-NTA Agarose  
 Base matrix: 7.5% cross-linked agarose  
 Ni-NTA capacity: 50 - 75 mg (per 1 ml resin)  
 Flow rate: 1 ml/min (1 ml), 1-5 ml/min (5 ml)  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42286.01	5 pieces

**■ 1 ml HiFliQ Protein A FPLC Column**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein A Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Protein A Agarose FF  
 Base matrix: Agarose  
 Protein A capacity (hlgG): 30 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42295.01	1 piece

**■ 5 ml HiFliQ Protein A FPLC Column**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein A Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Protein A Agarose FF  
 Base matrix: Agarose  
 Protein A capacity (hlgG): 30 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42297.01	1 piece

**■ 1 ml HiFliQ Protein A FPLC Columns**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein A Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Protein A Agarose FF  
 Base matrix: Agarose  
 Protein A capacity (hlgG): 30 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42296.01	5 pieces

**■ 5 ml HiFliQ Protein A FPLC Columns**

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein A Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

**Specifications**

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Protein A Agarose FF  
 Base matrix: Agarose  
 Protein A capacity (hlgG): 30 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42298.01	5 pieces



### ■ 1 ml HiFliQ Protein G FPLC Column

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein G Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Protein G Agarose FF  
 Base matrix: Agarose  
 Protein G capacity (hlgG): 20 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42299.01	1 piece

### ■ 5 ml HiFliQ Protein G FPLC Column

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein G Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Protein G Agarose FF  
 Base matrix: Agarose  
 Protein G capacity (hlgG): 20 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

Cat.No.	Size
42301.01	1 piece

### ■ 1 ml HiFliQ Protein G FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein G Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 1 ml resin  
 Column construction: Polypropylene  
 Resin: Protein G Agarose FF  
 Base matrix: Agarose  
 Protein G capacity (hlgG): 20 mg (per 1 ml resin)  
 Flow rate: 1 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 15 x 80 mm

Cat.No.	Size
42300.01	5 pieces

### ■ 5 ml HiFliQ Protein G FPLC Columns

HS 38220000

Protein Ark HiFliQ columns pre-packed and ready to use with Protein G Agarose FF resin for rapid antibody purification from serum, ascites and tissue culture supernatants.

Available in 1 ml and 5 ml HiFliQ column sizes with high ligand density and high binding capacity. Compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and low pressure pumps and syringes using an appropriate adaptor.

#### Specifications

Column volume: 5 ml resin  
 Column construction: Polypropylene  
 Resin: Protein G Agarose FF  
 Base matrix: Agarose  
 Protein G capacity (hlgG): 20 mg (per 1 ml resin)  
 Flow rate: 1 - 5 ml/min  
 Max. pressure: 0.5 MPa (72 psi)  
 Universal 10.32 (1/16") UNF threads: Inlet Female/Outlet Male  
 Dimensions: 23 x 80 mm

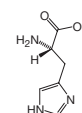
Cat.No.	Size
42302.01	5 pieces

### ■ L-Histidine base research grade, Ph. Eur., USP

(His; L-2-Amino-3-(4-imidazolyl)-propionic acid)  
 $C_6H_9N_3O_2$  ♦  $M_r$  155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %  
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
24820.02	100 g

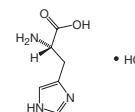
### ■ L-Histidine-HCl monohydrate research grade, Ph. Eur.

(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)

$C_6H_{10}N_4O_2 \cdot HCl \cdot H_2O$  ♦  $M_r$  209.6 ♦ CAS [5934-29-2]

WGK 1L ♦ HS 29332990

Assay (titr.) 98.5 - 101.0 %  
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
24842.02	100 g

### ■ HPE Blotting Kit for large format gels

For HPE™ BlotGels.

Storage Temperature: +15 °C to +30 °C

Cat.No.	Size
42670.01	1 kit

### ■ HPE Blotting Kit for medium-sized gels

For HPE™ BlotGels.

Storage Temperature: +15 °C to +30 °C

Cat.No.	Size
42669.01	1 kit

**HPE™ BlueHorizon™**

HS 90272000

The HPE™ BlueHorizon™ is a flatbed system for horizontal electrophoresis using precast gels, self-cast gels and gel strips. Main applications are isoelectric focusing (IEF) including the run of IPG strips (like SERVA IPG BlueStrips) in 2D PAGE and SDS PAGE, but also the separation of nucleic acids in polyacrylamide gels.

The unit consists of a stable metal housing and an integrated drawer. The drawer holds the cooling plate with connectors for the external refrigeration system (e.g. the circulatory refrigerator bath HPE™ Cooling Unit, cat. no. HPE-CU1). The cooling plate is made from special ceramic material (maximum gel size 260 x 205 mm) for efficient cooling. It provides even heat dissipation, allowing to run gels at a temperature as low as 4 °C. This is particularly important when applying high voltage to thin isoelectric focusing (IEF) gels.

The electrode lid comes with one pair of platinum electrodes. Three fixed electrode positions allow the usage of a wide range of different sized gels. Optional, an electrode lid with a triple electrode arrangement for bi-directional gel run is available. The easy-to-clean housing allows placing the power supply on top of the unit saving valuable space on your bench.

- ◆ High capacity cooling plate suitable for high voltage applications like IEF etc.
- ◆ Fixed platinum electrode distances of 270 mm, 195 mm and 115 mm
- ◆ For all kinds of film-backed flatbed gels, self or precast
- ◆ Samples are easy to load
- ◆ Economical reagent usage (minimizing running buffer volume)
- ◆ Smart design - made in Germany

HPE™ BlueHorizon™ – a highly sophisticated instrument to run horizontal gels under reliable temperature control.



Cat.No.	Size
HPE-BH	1 piece

**HPE™ BlueHorizon™ Bidirectional, with 3 Electrode Lid**

HS 90272000

The HPE™ BlueHorizon™ is a flatbed system for horizontal electrophoresis using precast gels, self-cast gels and gel strips. Main applications are isoelectric focusing (IEF) including the run of IPG strips (like SERVA IPG BlueStrips), 2D PAGE and SDS PAGE, HCP analysis and separation of recombinant proteins/antibodies, but also the separation of nucleic acids in polyacrylamide gels.

The unit consists of a stable metal housing and an integrated drawer. The drawer holds the cooling plate with connectors for the external refrigeration system (e.g. the circulatory refrigerator bath HPE™ Cooling Unit, cat. no. HPE-CU1). The cooling plate is made from special ceramic material (maximum gel size 260 x 205 mm) for efficient cooling. It provides even heat dissipation, allowing to run gels at a temperature as low as 4 °C. This is particularly important when applying high voltage to thin isoelectric focusing (IEF) gels.

The electrode lid comes with a triple electrode arrangement for bi-directional gel runs. The easy-to-clean housing allows placing the power supply on top of the unit saving valuable space on your bench.

- ◆ High capacity cooling plate suitable for high voltage applications like IEF etc.
- ◆ Fixed platinum electrode distances of 270 mm, 195 mm and 115 mm
- ◆ For all kinds of film-backed flatbed gels, self or precast
- ◆ Samples are easy to load
- ◆ Economical reagent usage (minimizing running buffer volume)
- ◆ Smart design - made in Germany

HPE™ BlueHorizon™ – a highly sophisticated instrument to run horizontal gels under reliable temperature control.



Cat.No.	Size
HPE-BH3E	1 piece

**HPE™ BlueHorizon™ C**

HS 90272000

HPE™ BlueHorizon™ C includes:

- ◆ HPE™ BlueHorizon™ flatbed chamber (cat. no. HPE-BH)
- ◆ HPE™ Cooling Unit (cat. no. HPE-CU1)

Cat.No.	Size
HPE-BHC	1 piece

**HPE™ BlueHorizon™ Double Deck**

HS 90272000

The HPE™ BlueHorizon™ Double Deck consists of two single HPE™ BlueHorizon™ flatbed chambers that can be easily combined to a mini tower to double the gel running capacity. To operate the system, both units can be connected to one chiller (cat. no. HPE-CU) and to one power supply (cat. no. BP-3000-HPE).

Cat.No.	Size
HPE-BHD	1 piece

**HPE™ BlueHorizon™ PS**

HS 90272000

HPE™ BlueHorizon™ PS includes:

- ◆ HPE™ BlueHorizon™ flatbed chamber (cat. no. HPE-BH)
- ◆ BluePower™ 3000 Volt Power Supply (cat. no. BP-3000-HPE)

Cat.No.	Size
HPE-BHP	1 piece

### ■ HPE™ BlueHorizon™ Quadra Deck

HS 90272000

The HPE™ BlueHorizon™ Quadra Deck consists of four single HPE™ BlueHorizon™ flatbed chambers that can be easily combined to a mini tower to quadruple the gel running capacity. To operate the system, all four units can be connected to one chiller (cat. no. HPE-CU) and to one power supply (cat. no. BP-3000-HPE).

Cat.No.	Size
HPE-BHQ	1 piece

### ■ HPE™ BlueHorizon™ System

HS 90272000

HPE™ BlueHorizon™ System includes:

- ◆ HPE™ BlueHorizon™ flatbed chamber (cat. no. HPE-BH)
- ◆ BluePower™ 3000 Volt Power Supply (cat. no. BP-3000-HPE)
- ◆ HPE™ Cooling Unit (cat. no. HPE-CU1)

Cat.No.	Size
HPE-BHSYS	1 piece

### ■ HPE™ BlueHorizon™ Triple Deck

HS 90272000

The HPE™ BlueHorizon™ Triple Deck consists of three single HPE™ BlueHorizon™ flatbed chambers that can be easily combined to a mini tower to triple the gel running capacity. To operate the system, all three units can be connected to one chiller (cat. no. HPE-CU) and to one power supply (cat. no. BP-3000-HPE).

Cat.No.	Size
HPE-BHT	1 piece

### ■ HPE™ BlueTower

HS 90272000

The HPE™ BlueTower allows electrophoretical separations of up to four horizontal flatbed gels at the same time. It is used for 1D and 2D electrophoresis gels. For more information please refer to „HPE™ Blue Tower System“ (cat. no. HPE-TS2).



Cat.No.	Size
HPE-T02	1 piece

### ■ HPE™ BlueTower System

HS 90272000

The HPE™ BlueTower System allows electrophoretical separations in up to four horizontal gels at the same time. It is used for 1D and 2D electrophoresis gels, where multiple runs are an important demand. Structurally, the HPE™ BlueTower consists of four horizontal electrophoresis chambers, which are built as movable drawers into a metal housing. The HPE™ BlueTower and the HPE™ gels have been developed together as a system to achieve better results than with conventional SDS polyacrylamide gel electrophoresis (PAGE) technology. The precast HPE™ gels, which are less than 1 mm thin and film-backed, are protected from light during the run. No glass plates are used. They are placed on aluminum oxide ceramic cooling plates, which ensure very efficient heat dissipation and therefore straight electrophoretic migration in each gel.

#### Content:

HPE™ BlueTower (HPE-T02), HPE™ BluePower™ 3000V Supply (BP-3000-HPE) and HPE™ Cooling Unit (HPE-CU1).

Cat.No.	Size
HPE-TS2	1 piece

### ■ HPE™ Cooling Unit

HS 90272000

Cooling unit for HPE™ BlueTower and HPE™ BlueHorizon™ flatbed systems.

Cat.No.	Size
HPE-CU1	1 piece

### ■ 2D HPE™ Double BlotGel NF 12.5 % Kit

Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid.

The gels can be easily blotted because the gels are non-covalently bound to the supporting film so that it can be removed from the gel after electrophoresis. This non-fluorescent (NF) supporting film also provides best results for fluorescent staining and labelling.

Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™.

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43430.01	1 kit

### ■ 2D HPE™ Double Gel 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43309.01	1 kit

### ■ 2D HPE™ Double Gel 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43308.01	1 kit

### ■ 2D HPE™ Double Gel NF 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Can also be used for silver and Coomassie® staining but for best results use gels on standard backing.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43302.01	1 kit

**2D HPE™ Double Gel NF 10 - 15 % Kit**

Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Can also be used for silver and Coomassie® staining but for best results use gels on standard backing.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43303.01	1 kit

**HPE™ Electrode Lid**

HS 90272000

Replacement Lid for HPE™ Tower, HPE™ BlueHorizon.

Cat.No.	Size
HPE-RL	1 piece

**HPE™ Electrode Mounting Kit**

HS 90272000

Cat.No.	Size
HPE-EMK	1 kit

**2D HPE™ Large BlotGel NF 10-15 % Kit**

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43435.01	1 kit

**2D HPE™ Large BlotGel NF 12.5 % Kit**

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43432.01	1 kit

**2D HPE™ Large Gel 10 - 15 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43311.01	1 kit

**2D HPE™ Large Gel 12.5 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43310.01	1 kit

**2D HPE™ Large Gel NF 10 - 15 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Also suitable for silver and Coomassie® staining but for best results use gels on standard backing.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43305.01	1 kit

**2D HPE™ Large Gel NF 12.5 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Also suitable for silver and Coomassie® staining but for best results use gels on standard backing.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43304.01	1 kit

**HPE™ Pool**

HS 90272000

Pool for rehydrating SERVA flatbed gels up to 260 x 125 mm.

Cat.No.	Size
HPE-A32	1 piece

**2D HPE™ Triple BlotGel NF 12.5 %** Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

*Coomassie = registered trademark of ICI Ltd.*

*Multiphor = trademark of GE Healthcare*

Cat.No.	Size
43429.01	1 kit

### ■ 2D HPE™ Triple Gel 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Multiphor = trademark of GE Healthcare

Cat.No.	Size
43307.01	1 kit

### ■ 2D HPE™ Triple Gel 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on standard backing providing best results for silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Multiphor = trademark of GE Healthcare

Cat.No.	Size
43306.01	1 kit

### ■ 2D HPE™ Triple Gel NF 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Can also be used for silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Multiphor = trademark of GE Healthcare

Cat.No.	Size
43301.01	1 kit

### ■ 2D HPE™ Triple Gel NF 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ BlueTower, HPE™ BlueHorizon or Multiphor II™. Gels are on NF backing providing best results for fluorescent staining and labelling. Can also be used for silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Multiphor = trademark of GE Healthcare

Cat.No.	Size
43300.01	1 kit

### ■ Hyaluronidase from ovine testes min. 1000 U/mg lyophil.

EC 3.2.1.35 ♦ M<sub>r</sub> ca. 55 000 ♦ CAS [37326-33-3]

DANGER

H334 ♦ EINECS 253-464-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Glucosidase which cleaves endo-N-acetylhexosaminic bonds in hyaluronic acid and chondroitin sulfate A and C to tetrasaccharide residues. As hyaluronic acid and chondroitin sulfate are often found in connective tissues, Hyaluronidase is often used in conjunction with collagenase to dissociate the extracellular matrix between cells of animal tissue, in order to release viable cells for use in tissue culture.

It may also be used to clarify synovial fluids in order to make cell counts possible.

**Unit definition:** 1 U produces the same turbidity reduction in a mixture of hyaluronic acid and albumin as 1 I.U. (International Unit) of a standard hyaluronidase preparation (1).

#### References:

1. Mathews, M.B. (1966) *Methods Enzymol.* **8**, 654-62

Cat.No.	Size
25118.01	50 mg
25118.02	500 mg

### □ 2-Hydroxy-5-sulfobenzoic acid

see 35706 5-Sulfosalicylic acid, page 135

### ■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade, for cell culture

(HEPES)

C<sub>8</sub>H<sub>16</sub>N<sub>2</sub>O<sub>4</sub>S ♦ M<sub>r</sub> 238.3 ♦ CAS [7365-45-9]

EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.08

Heavy metals (Pb) max. 10 ppm

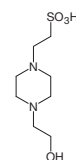
pH 10 % in water 5.0 - 6.5

#### References:

1. Good, N.E. et al. (1966) *Biochemistry* **5**, 467-77

2. Shipman jr., Ch. (1969) *Proc. Soc. Exp. Biol. Med.* **130**, 305-10

3. Vega, C.A. & Bates, R.G. (1976) *Anal. Chem.* **48**, 1293-6



Cat.No.	Size
25245.03	100 g
25245.04	250 g
25245.05	1 kg
25245.06	5 kg

### ■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid ·Na-salt analytical grade

(HEPES·Na-salt)

C<sub>8</sub>H<sub>17</sub>N<sub>2</sub>O<sub>4</sub>S·Na ♦ M<sub>r</sub> 260.3 ♦ CAS [75277-39-3]

EINECS 278-169-7 ♦ WGK 1 ♦ HS 29335995

pKa 20 = 7.55. Buffering substance for biochemistry and molecular biology.

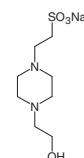
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.15

280 nm max. 0.1

pH 10 % in water 9.5 - 11.5



Cat.No.	Size
25249.04	1 kg

### □ 3-Hydroxypropionic acid lactone

see 33672 β-Propiolactone, page 86

### □ 6-Hydroxypurine riboside

see 26250 Inosine, page 63



**Hygromycin B** research grade

CAS [31282-04-9]



DANGER  
H300-H310-H315-H318-H330-H335 ♦ GGVSE/  
ADR 6.1 | UN3462 ♦ IATA 6.1 | UN3462 ♦ WGK 2 ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Aminoglycoside antibiotic that inhibits growth of procaryotic microorganisms (bacteria), eukaryotic microorganisms (yeasts) and mammalian cells.

Inhibits protein synthesis at translocation step; causes misreading of mRNA. A gene from *E. coli* encoding resistance to hygromycin B can be isolated and cloned by recombinant DNA technology. It is useful for the identification or selection of recombinant clones in various cell types.

Assay (HPLC) min. 90.0 %  
Potency (on a dry basis) ≥ 900 u/mg

Cat.No.	Size
25965.01	250 mg
25965.03	1 g

**Hypoxanthine-9-β-D-ribofuranoside**

see 26250 Inosine, page 63

**IAA**

see 26181 Indole-3-acetic acid, page 63

**IBA**

see 26172 Indole-3-butyric acid, page 63

**IBMX**

see 26445 3-Isobutyl-1-methylxanthine, page 64

**IDA-Agarose Resins**

see 42141 SERVA Ni-IDA HD Agarose Resin, page 111

**IEF Marker 3-10, Liquid Mix**

(Protein Standards (Markers) for IEF)

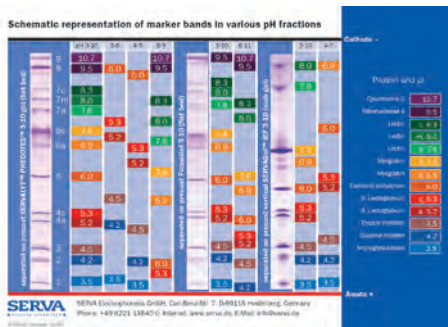
HS 38220000

Storage temperature -15 °C to -25 °C

Ready-to-use protein marker for isoelectric focusing. Contains 9 proteins of the pI range 3.5 to 10.7 (13 isoforms).

Buffer composition:

0.01 % bromophenol blue (Na-salt), 0.01 % methyl red (Na-salt), 10 % glycerol.



Amyloglucosidase pI 3.5  
Glucose oxidase pI 4.2  
Trypsin inhibitor pI 4.5  
β-Lactoglobulin pI 5.15/5.3  
Carboanhydrase pI 6.0  
Myoglobin horse pI 6.9/7.35  
Lentil lectin pI 7.75/8.0/8.3  
Ribonuclease A pI 9.45  
Cytochrome C pI 10.65

Cat.No.	Size
39212.01	500 µl

**IEF Sample Buffer (2x)** sterile filtered

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA IEF sample buffer is suited to all vertical and horizontal IEF applications and systems. The sample buffer is supplied as 2x concentrate. It is sterile filtered, beneficial to long shelf life and absence of contaminants. Simply mix the liquid sample 1:1 with the buffer or dissolve a solid sample in the buffer first and dilute with water 1:1. When performing IEF in the presence of urea mix the sample with the buffer and add solid urea or use concentrated urea solution.

The buffer contains 4 % SERVALYT™ 4 - 9 T, 30 % glycerol and 0.005 % phenol red.

Cat.No.	Size
42537.01	20 ml

**IEF Starter Kit**



DANGER  
H314-H334-H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

The kit contains:

3 SERVALYT™ PRECOTES™ 125 x 125 mm with PAG layer 300 µm

Electrode wicks 20  
Applicator strips 1  
Electrode buffer solutions 2 x 10 ml  
Heat exchange liquid 10 ml  
SERVA Blue W 100 mg  
SERVA Violet 17 100 mg  
IEF marker 3-10 SERVA Liquid Mix 60 µl

Cat.No.	Size
39060.01	1 kit

**IgG Sample Diluter IEF**

HS 38220000

Dilution for CSF analysis on IEF gels.

Cat.No.	Size
43336.01	100 ml

**Imidazole** research grade

C<sub>3</sub>H<sub>5</sub>N<sub>2</sub> ♦ M<sub>r</sub> 68.08 ♦ CAS [288-32-4]



DANGER  
H301-H314-H361d ♦ GGVSE/  
ADR 8 III UN2923 ♦ IATA 8 III UN2923 ♦

EINECS 206-019-2 ♦ WGK 1L ♦ HS 29332990

For preparation of buffers in the pH range of 6.2 - 7.8 (25 °C) Imidazol is used for the elution of His-tagged recombinant proteins in immobilized metal-affinity chromatography (IMAC), as a chelator for the binding of various divalent cations and in reverse staining of SDS-PAGE protein gels.

Assay (GC) min. 99.0 %

Cat.No.	Size
26081.01	100 g
26081.02	500 g

**Immobilon™-P-membrane**

Pore size 0.45 µm, format: 26.5 cm x 3.75 m

HS 39219090

Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidenfluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Cat.No.	Size
42581.01	1 roll

### Indole-3-acetic acid research grade

(IAA; Heteroauxins; Auxins)  
 $C_{10}H_9NO_2$  ♦  $M_r$  175.2 ♦ CAS [87-51-4]  
 EINECS 201-748-2 ♦ HS 29339980  
 Storage temperature +2 °C to +8 °C

Plant growth regulator.

Assay (titr.) 97.0 - 103.0 %  
 MP 165 - 169 °C

#### References:

1. Graffeo, A. et al. (1976) Clin. Chem. **22**, 184-7

Cat.No.	Size
26181.01	5 g

### Indole-3-butyric acid research grade

(4-(3-Indolyl)butyric acid; IBA; Auxins)  
 $C_{12}H_{13}NO_2$  ♦  $M_r$  203.24 ♦ CAS [133-32-4]



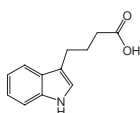
DANGER  
 H301-H315-H319-H335 ♦ GGVSE/  
 ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 205-101-5 ♦ WGK 2 ♦ HS 29339980  
 Storage temperature +2 °C to +8 °C

Plant growth regulator. Sensitive to light, store in the dark.

Assay (titr.) min. 99.0 %  
 Water (KF) max. 1.0 %

Cat.No.	Size
26172.04	100 g



### Inosine research grade

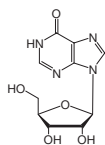
(Hypoxanthine-9-β-D-ribofuranoside; 6-Hydroxypurine riboside)  
 $C_{10}H_{12}N_4O_5$  ♦  $M_r$  268.23 ♦ CAS [58-63-9]

EINECS 200-390-4 ♦ WGK 1 ♦ HS 29349990

Inosine is able to base pair with deoxythymidine, deoxyadenosine and deoxyguanosine. Incorporation of inosine in place of guanine modulates translational events. It regulates biological processes through adenosine receptors.

Assay (HPLC) min. 98.0 %  
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26250.03	100 g



### myo-Inositol research grade, USP/NF

(meso-Inositol; i-Inositol; 1,2,3,5/4,6-Hexahydroxycyclohexane)  
 $C_6H_{12}O_6$  ♦  $M_r$  180.2 ♦ CAS [87-89-8]

EINECS 201-781-2 ♦ WGK 1 ♦ HS 29061390

For bacteriology. Optically inactive. Tested for its suitability in tissue culture.

Assay (HPLC) min. 97.0 %  
 MP 224 - 227 °C

Cat.No.	Size
26310.01	100 g



### meso-Inositol

see 26310 *myo*-Inositol, page 63

### Insulin, recombinant human, min. 27.5 IU/mg Ph. Eur., USP

$M_r$  ca. 5800 ♦ CAS [11061-68-0]

HS 29371200

Storage temperature -15 °C to -25 °C

Identical in structure and function to the native human sequence. Essential for long-term growth of various cell lines. Stimulates the proliferation of cells and supports carbohydrate metabolism. Absence of insulin in the medium may result in disturbances of cell morphology and growth rate. Recommended concentration for use in serum free media is 1 - 10 µg/ml.

Assay 95.0 - 105.0 %  
 Bacterial endotoxins (IU/mg) max. 10

Cat.No.	Size
26360.01	50 mg

### INT

see 26840 Iodonitrotetrazolium chloride, page 63

### Iodoacetamide research grade

$C_2H_4INO$  ♦  $M_r$  185.0 ♦ CAS [144-48-9]



WARNING  
 H315-H319-H335 ♦ EINECS 205-630-1 ♦ WGK 2 ♦  
 HS 29241900

Storage temperature +2 °C to +8 °C

Alkylating agent for use in protein sample preparation applications. For carboxymethylation of proteins.

Assay (HPLC) min. 99.0 %

#### References:

1. Gurd, F.R. (1967) Methods Enzymol. **11**, 532-41

Cat.No.	Size
26710.01	5 g
26710.02	25 g



### Iodonitrotetrazolium chloride research grade

(INT; 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyl-2H-tetrazolium-chloride; Iodonitrotetrazolium violet)  
 $C_{19}H_{13}ClIN_5O_2$  ♦  $M_r$  505.72 ♦ CAS [146-68-9]



WARNING  
 H302-H312-H332 ♦ EINECS 205-676-2 ♦  
 WGK 1 ♦ HS 29339980

For LDH detection (1).

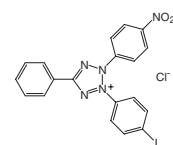
For colorimetric measurement of enzymatic hydrolysis of terminal galactose from GM<sub>1</sub> ganglioside (2).

Assay (titr.) min. 99.0 %

#### References:

1. Babson, A.L. & Babson, S.R. (1973) Clin. Chem. **19**, 766-9  
 2. Urbanowski, J.C. et al. (1980) Anal. Biochem. **105**, 461-7

Cat.No.	Size
26840.02	2,5 g
26840.03	10 g



### Ion Exchange Media

see 42443 SERDOLIT® PAD I, 0.1 - 0.2 mm, page 102

### Ion Exchange Media

see 41030 DOWEX® 1X2 (50-100 mesh), page 38

### IPG Chamber Cleaner

HS 34022090

IPG Chamber Cleaner is a pH neutral, non-toxic, highly active cleaning material. It has been specifically formulated for effectively removing protein deposits from the IPG strip holder, lids, etc. of a first dimension isoelectric focusing unit, e.g. IEF100.

Cat.No.	Size
43399.01	1 L

### IPG Strips

see 43001 SERVA IPG BlueStrip 3-10 / 7 cm, page 108

### IPGTG

see 26600 Isopropyl-β-D-thiogalactopyranoside, page 64

**Isoamyl alcohol** molecular biology grade

(3-Methyl-1-butanol; Isopentylalcohol)  
 $C_5H_{12}O$  ♦  $M_r$  88.15 ♦ CAS [123-51-3]



**WARNING**  
 H226-H332-H335 ♦ MAK/TRK 370 mg/m<sup>3</sup>; 100 ml/m<sup>3</sup> ♦  
 EG-Index 603-006-00-7 ♦ GGVSE/ADR 3 III UN1105 ♦  
 IATA 3 III UN1105 ♦ EINECS 204-633-5 ♦ WGK 1 L ♦ HS 29051490

DNase, RNase, Proteases not detected. Suitable for use in nucleic acid purification. Isoamyl alcohol prevents foaming during nucleic acid extraction with Phenol:Chloroform:Isoamyl alcohol.

Assay (total isomers, GC) min. 99.0 %  
 Water (KF) max. 0.3 %

**References:**

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.3-E.4)

Cat.No.	Size
39557.01	250 ml

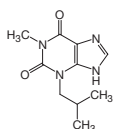
**3-Isobutyl-1-methylxanthine** research grade

(IBMX)  
 $C_{10}H_{14}N_4O_2$  ♦  $M_r$  222.2 ♦ CAS [28822-58-4]

EINECS 249-259-3 ♦ HS 29335995

Inhibitor of cAMP-phosphodiesterase. Soluble in ethanol.

Assay (HPLC) min. 98.0 %  
 MP 200 - 203 °C



**References:**

1. Ashcroft, S.J.H. et al. (1973) FEBS Lett. **20**, 263-6

Cat.No.	Size
26445.02	500 mg

**Isopropanol** molecular biology grade

(2-Propanol)  
 $C_3H_8O$  ♦  $M_r$  60.09 ♦ CAS [67-63-0]



**DANGER**  
 H225-H319-H336 ♦ MAK/TRK 500 mg/m<sup>3</sup>; 200 ml/m<sup>3</sup> ♦  
 EG-Index 603-117-00-0 ♦ GGVSE/ADR 3 II UN1219 ♦  
 IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦ WGK 1 L ♦

HS 29051200

Suitable for the precipitation of nucleic acids. When compared to ethanol 50 % less is required for nucleic acid precipitation.

Purity (GC) min. 99.7 %  
 Water max. 0.1 %

1 L in glass bottle = 39559.02  
 1 L in plastic bottle = 39559.03

**References:**

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning,
2. Cold Spring Harbor Laboratory Press (E.13-E.14)

Cat.No.	Size
39559.01	250 ml
39559.02	1 L
39559.03	1 L

**Isopropanol** analytical grade

(2-Propanol)  
 $C_3H_8O$  ♦  $M_r$  60.1 ♦ CAS [67-63-0]



**DANGER**  
 H225-H319-H336 ♦ EG-Index 603-117-00-0 ♦ GGVSE/  
 ADR 3 II UN1219 ♦ IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦  
 WGK 1 L ♦ HS 29051200

Polar organic solvent commonly used in chemistry and molecular biology laboratories. It will dissolve a wide range of chemicals and evaporates quickly.

Assay (GC) min. 99.7 %  
 Density (20 °C) 0.784 - 0.788 g/ml  
 Water max. 0.1 %  
 Free acid max. 20 ppm  
 Residue on evaporation max. 10 ppm

Cat.No.	Size
45629.01	1 L
45629.02	2,5 L

**Isopropanol for LC-MS**

CAS [67-63-0]



**DANGER**  
 H225-H319-H336 ♦ EG-Index 603-117-00-0 ♦ GGVSE/  
 ADR 3 II UN1219 ♦ IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦  
 WGK 1 L ♦ HS 29051200

Special grade for excellent performance in liquid chromatography-mass spectrometry (LC-MS).

Assay (GC) min. 99.95 %  
 Refractive index (20 °C) 1.375 - 1.379  
 Acidity ≤ 0.0010 %  
 Alkalinity ≤ 0.0005 %  
 Water (KF) ≤ 200 ppm  
 Residue on evaporation ≤ 2 ppm

**Transmittance**  
 220 nm min. 64.0 %  
 230 nm min. 80.0 %  
 260 nm min. 98.5 %

HPLC gradient  
 254 nm max. 2 mAU

**Test LC-MS TIC (50 – 2000 m/z)**  
**ES I(+)**

Sensitive impurities (reserpine) max. 100 ppb  
**Metal Compounds** max. 50 ppb

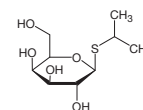
Microfiltered, 0.1 µm

Cat.No.	Size
45636.01	1 L
45636.02	2,5 L

**Isopropyl-β-D-thiogalactopyranoside** research grade, dioxane-free

(IPTG; Isopropyl-1-thio-β-D-galactopyranoside)  
 $C_9H_{18}O_5S$  ♦  $M_r$  238.3 ♦ CAS [367-93-1]

EINECS 206-703-0 ♦ WGK 1 ♦ HS 29389090  
 Storage temperature -15 °C to -25 °C



Analog of galactose, not split by β-galactosidase.

Inducer of the lac operon in bacteria. Used in conjunction with X-Gal (5-bromo-4-chloro-indolyl-β-D-galactoside, cat. no. 15243) for detection of lac<sup>+</sup> colonies. Dissolve in H<sub>2</sub>O to 200 mg/ml, sterilize by filtration and store in aliquots at -20 °C. For detection of transformants, use in final concentration of 0.1 mM.

Assay (HPLC) min. 98.0 %  
 [α]<sub>D</sub> 20 °C/D (c=1 in water) -28.5 ° to -34.5 °  
 1,4-Dioxane not detected

**References:**

1. Donner, J. et al. (1982) J. Biol. Chem. **257**, 14826-9
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (4.33, 4.37-4.38, 1.8-1.9, 17.12-17.13, B.11)
3. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (1.4.3, 16.2.3, 1.15.1)

Cat.No.	Size
26600.03	1 g
26600.04	10 g
26600.06	50 g

**Kanamycin acid sulfate** research grade, BP

$C_{18}H_{36}N_4O_{11} \cdot 1.7 H_2SO_4$  ♦  $M_r$  651.2

HS 29419000

Storage temperature +2 °C to +8 °C

Min. 670 U/mg. Kanamycin acid sulfate is a form of kanamycin sulfate prepared by adding sulfuric acid to a solution of kanamycin sulfate and drying by a suitable method. Sulfate content: 23 - 26 %, compared to 15 - 17 % in kanamycin sulfate.

**References:**

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. **Review:**  
 Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotic chemistry, vol. 3, Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
5. Spena, A. a. Schell, J. (1987) Mol. Gen. Genetics **206**, 436-40
6. Busch, M. et al. (2002) Plant Physiol. **128**, 439-53

Cat.No.	Size
26898.03	25 g

### Kanamycin sulfate research grade

CAS [25389-94-0]



DANGER

H360D ♦ EG-Index 246-933-9 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Aminoglycoside antibiotic, inhibitor of protein biosynthesis. It is active against gram negative and gram positive bacteria. Main component is Kanamycin A. Suitable for prevention of bacterial contamination in cell culture.

Activity: min. 750 U/mg. Easily soluble in water.

Stock solution: 10 mg/ml in H<sub>2</sub>O, working solution: 100 µg/ml

#### References:

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
3. Vetting, M.W. et al. (2002) Nature Struct. Biol. **9**, 653-8
4. Lambert, C. et al. (2003) Environm. Biol. **5**, 127-32
5. Kataoka, T. et al. (2004) Plant Physiol. **136**, 4198-204

Cat.No.	Size
26897.01	5 g
26897.02	25 g
26897.03	100 g

### Kanamycin sulfate molecular biology grade, Ph. Eur.

C<sub>18</sub>H<sub>36</sub>N<sub>4</sub>O<sub>11</sub>·H<sub>2</sub>SO<sub>4</sub>·H<sub>2</sub>O ♦ M<sub>r</sub> 600.6 ♦ CAS [25389-94-0]

DANGER

H360D ♦ EINECS 246-933-9 ♦ WGK 1 ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Aminoglycoside antibiotic, inhibitor of protein biosynthesis. It is active against gram negative and gram positive bacteria. Main component is Kanamycin A. Suitable for prevention of bacterial contamination in cell culture. Used in molecular biology for the selection of resistant bacteria.

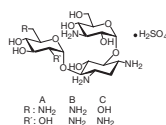
Activity: min. 750 U/mg. Easily soluble in water.

Stock solution: 10 mg/ml in H<sub>2</sub>O, working solution: 100 µg/ml.

#### References:

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in Antibiotic Chemistry, vol. **3**, Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
5. Nakashima, K. et al. (1999) J. Biol. Chem. **274**, 27786-92
6. Vetting, M.W. et al. (2002) Nature Struct. Biol. **9**, 653-8
7. Lambert, C. et al. (2003) Environm. Biol. **5**, 127-32
8. Kataoka, T. et al. (2004) Plant Physiol. **136**, 4198-204

Cat.No.	Size
26899.02	5 g
26899.03	25 g



### Kerosene, low odor

CAS [8008-20-6]



DANGER

H304 ♦ EG-Index 649-404-00-4 ♦ EINECS 232-366-4 ♦ WGK 1 ♦

HS 27101925

Suitable as cooling fluid in horizontal electrophoresis.

Cat.No.	Size
26945.01	1 L

### LabImage 1D L-320 Gel Analysis

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training. LabImage 1D L-320 is the basic version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pl standard as well as multiple standards for one gel and has many different report and export functions. LabImage 1D Gel Analysis Software - your tool in 1D gel analysis

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ As single and network license available

*This version is for academic only. For corporate usage please ask for L-320-C*

Cat.No.	Size
LI-320-A	1 piece

### LabImage 1D L-320 Gel Analysis

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training. LabImage 1D L-320 is the basic version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pl standard as well as multiple standards for one gel and has many different report and export functions. LabImage 1D Gel Analysis Software - your tool in 1D gel analysis

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ As single and network license available

*This version is for corporate only. For academic usage please ask for L-320-A*

Cat.No.	Size
LI-320-C	1 piece

### LabImage 1D L-340 Gel Analysis

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training. LabImage 1D L-340 is the advanced version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pl standard as well as multiple standards for one gel and has many different report and export functions.

Moreover it includes grimace correction, Rf calibration and correction of multiple standards, can normalize not only single band but group of bands and has an additional export report to RFT and XLS. An additional module allows FDA 21 CFR Part 11 compliance.

LabImage 1D Gel Analysis Software - your tool in 1D gel analysis

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ Compliant with FDA21 CFR part 11 (module required)
- ◆ As single and network license available

*This version is for academic only. For corporate usage please ask for L-340-C*

Cat.No.	Size
LI-340-A	1 piece

**■ LabImage 1D L-340 Gel Analysis**

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training.

LabImage 1D L-340 is the advanced version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pI standard as well as multiple standards for one gel and has many different report and export functions.

Moreover it includes grimace correction, Rf calibration and correction of multiple standards, can normalize not only single band but group of bands and has an additional export report to RFT and XLS. An additional module allows FDA 21 CFR Part 11 compliance.

LabImage 1D Gel Analysis Software - your tool in 1D gel analysis

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ Compliant with FDA21 CFR part 11 (module required)
- ◆ As single and network license available

*This version is for corporate only. For academic usage please ask for L-340-A*

Cat.No.	Size
LI-340-C	1 piece

**■ LabImage 1D L-360-A Gel Analysis**

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training.

LabImage 1D L-360 is the advanced version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pI standard as well as multiple standards for one gel and has many different report and export functions.

Moreover it includes grimace correction, Rf calibration and correction of multiple standards, can normalize not only single band but group of bands and has an additional export report to RFT and XLS. An additional module allows FDA 21 CFR Part 11 compliance. As these functions are shared with the L-340, additionally the L-360 version could detect multiple regions of interest (ROIs) and is fully automatable (create and edit macros for automation, apply macros to single image or image stack).

LabImage 1D Gel Analysis Software - your tool in 1D gel analysis.

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ Compliant with FDA21 CFR part 11 (module required)
- ◆ As single and network license available

*This version is for academic only. For corporate usage please ask for L-360-C*

Cat.No.	Size
L-360-A	1 piece

**■ LabImage 1D L-360-C Gel Analysis**

HS 90279050

LabImage 1D gel analysis (LabImage 1D) is a flexible solution with strong image analysis algorithms, applicable also for DNA or protein testing and western blotting techniques. Due to its workflow-based concept, this application has become a prime example of software usability. Based on the latest technology, this application works with both Mac and the latest Windows versions and requires no special user training.

LabImage 1D L-360 is the advanced version for standard 1D analysis of protein and nucleic acid gels. It allows import of common image types or import of images from scanner or camera, automatic lane and band detection, manual lane and band correction, calculation of MW, Rf, area, band volume, background reduction, creation of own MW or pI standard as well as multiple standards for one gel and has many different report and export functions.

Moreover it includes grimace correction, Rf calibration and correction of multiple standards, can normalize not only single band but group of bands and has an additional export report to RFT and XLS. An additional module allows FDA 21 CFR Part 11 compliance. As these functions are shared with the L-340, additionally the L-360 version could detect multiple regions of interest (ROIs) and is fully automatable (create and edit macros for automation, apply macros to single image or image stack).

LabImage 1D Gel Analysis Software - your tool in 1D gel analysis.

- ◆ Full 16 bit image processing
- ◆ Intuitive User Interface/Workflow
- ◆ Runs under Windows, Mac OS X, Linux
- ◆ Compliant with FDA21 CFR part 11 (module required)
- ◆ As single and network license available

*This version is for corporate only. For academic usage please ask for L-360-A.*

Cat.No.	Size
L-360-C	1 piece

**■ Laemmli Buffer 10x, for SDS PAGE**

HS 38220000

Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 0.25 M Tris, 1.92 M glycine and 1 % SDS in aqueous solution.

Cat.No.	Size
42556.01	2 L
42556.04	10 L

**■ Laemmli Sample Buffer 2x, for SDS PAGE**

HS 38220000

Storage temperature +2 °C to +8 °C

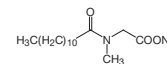
Sample buffer for SDS PAGE. Supplied as 2x concentrate. Contains 126 mM Tris/Cl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size
42526.01	20 ml
42526.02	5 x 20 ml

**■ N-Lauroylsarcosine-Na-salt 30 % solution**

(Sarkosyl NL-30; Oramix L30)

C<sub>15</sub>H<sub>28</sub>NO<sub>3</sub>Na ◆ M, 293.4



DANGER  
H315-H318 ◆ WGK 1 ◆ HS 38089490

Disinfectant. Active substance 28.5 - 32.0 %.

pH (3 % in water)

7.5 - 8.5

Cat.No.	Size
27570.01	500 ml
27570.02	5 L



### LB Agar (Lennox), powder 35 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone  
5 g/l Yeast extract  
5 g/l NaCl  
15 g/l Agar

For making 1 L liquid medium suspend 35 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving. Cool to 45 °C prior to dispensing into sterile petri dishes.

#### References:

- Luria, S.E., et al., *Virology* **12**, 348-390 (1960)
- Miller, J.H., *Experiments in Molecular Genetics*, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size
48502.01	700 g

### LB Medium (Lennox), powder 20 g for 1 liter medium

WGK 1 ♦ HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone  
5 g/l Yeast extract  
5 g/l NaCl

For making 1 L liquid medium suspend 20 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

#### References:

- Luria, S.E., et al., *Virology* **12**, 348-390 (1960)
- Miller, J.H., *Experiments in Molecular Genetics*, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size
48501.01	500 g

### Lectin from *Canavalia ensiformis* lyophil.

(Concanavalin A from jack bean)

M<sub>r</sub> 110 000 ♦ CAS [11028-71-0]

DANGER

H317-H334 ♦ EINECS 234-258-2 ♦ WGK 1 ♦ HS 35040090  
Storage temperature +2 °C to +8 °C

Mitogenic lectin purified from the jack bean, *C. ensiformis*, that selectively cross-links cell-surface glycoproteins and affects the initiation of cell agglutination, mitogenesis, and apoptosis. Concanavalin A (ConA) binds to D-glucose, D-mannose and sterically related sugars in glycoproteins, and glycolipids and has been used in affinity chromatography purifications of various glycoproteins and cellular structures (1).

It has potential anticancer effects due to mitogenic activity with lymphocytes and cancer cells (2). When administered, concanavalin A binds to glycoproteins of the cell membrane, inducing autophagy when it eventually enters the cell. Simultaneously, it triggers inflammation of tumorous cells, causing an immune response targeted against those cells. This simultaneous induction of immune response and autophagy makes it a potentially potent and novel cancer treatment. It is also used for studies of immune regulation across various cell types

**Sugar specificity:** D-glucose, D-mannose and sterically related sugars

**Hemagglutination:** Reference (3)

#### References:

- Bessler, W. & Goldstein, I.J. (1973) *FEBS Lett.* **34**, 58-62
- Lin, H. et al. (1975) *Cancer Chemother. Rep.* **59**, 319-26
- Wang, J.L. et al. (1975) *J. Biol. Chem.* **250**, 1490-1502

Cat.No.	Size
27648.01	100 mg
27648.03	1 g

### Lecithin from egg yolk pure

CAS [93685-90-6]

EINECS 297-639-2 ♦ HS 29232000

Storage temperature -15 °C to -25 °C

Phosphatidylcholine belongs to the class of glycerophospholipids and contains choline as the head-group. It is the major phospholipid found in eukaryotic organism.

Phosphatidyl choline min. 70.0 %  
Iodine number min. 63 - 69  
Peroxide value max. 5

Cat.No.	Size
27608.01	25 g
27608.02	100 g
27608.03	500 g

### Lecithin from soybean

(Vegetable lecithin)

HS 29232000

Storage temperature +2 °C to +8 °C

Phosphatidylcholine belongs to the class of glycerophospholipids and contains choline as the head-group. It is the major phospholipid found in eukaryotic organism.

Phosphatidyl choline min. 17.0 - 25.0 %  
Acetone insol. substances min. 96.5 %  
Toluol insoluble substances max. 0.3 %

Cat.No.	Size
57556.01	100 g
57556.02	1 kg

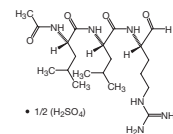
### Leupeptin

(Acetyl-L-leucyl-L-leucyl-L-argininal)

C<sub>20</sub>H<sub>38</sub>N<sub>6</sub>O<sub>4</sub> · 1/2H<sub>2</sub>SO<sub>4</sub> ♦ M<sub>r</sub> 475.6 ♦ CAS [103476-89-7]

WARNING

H302-H332 ♦ WGK 1 ♦ HS 29241900  
Storage temperature -15 °C to -25 °C



Inhibitor of serine and cysteine proteases.

Assay (HPLC) min. 96.5 %  
(sum of tautomeric isomers)

#### References:

- Umezawa, H. (1976) *Methods Enzymol.* **45**, 678-83
- Carlin, C. et al. (1994) *J. Cell. Physiol.* **160**, 427-34
- Savory, P.J. & Rivett, A.J. (1993) *Biochem. J.* **289**, 45-8
- Eto, I. & Bandy, M.D. (1990) *Mol. Cell. Biochem.* **94**, 19-36
- Benistani, B. et al. (1994) *Biochim. Biophys. Acta* **1223**, 84-90

Cat.No.	Size
51867.02	10 mg
51867.03	50 mg

### Levulose

see 21830 D-Fructose, page 47

### Lid with 3 Electrodes for Bi-Directional Electrophoresis

HS 90272000

Cat.No.	Size
HPE-3EL	1 piece

### Lowry Assay Kit



DANGER

H314-H412 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on Lowry's method (1). It contains ready-to-use reagents and protein standard. The assay is fast and has a sensitivity of 50 µg protein/ml.

Sufficient for 250 2-ml assays.

#### References:

- Lowry O. H., et al. (1951) *J. Biol. Chem.* **193**, 265 - 275

Cat.No.	Size
39236.01	250 tests

**Luminol** research grade

(3-Aminophthalhydrazine;  
5-Amino-2,3-dihydro-1,4-phthalazinedione)  
C<sub>8</sub>H<sub>7</sub>N<sub>3</sub>O<sub>2</sub> ♦ M<sub>r</sub> 177.2 ♦ CAS [521-31-3]



**WARNING**  
H302-H332 ♦ EINECS 208-309-4 ♦ WGK 1 ♦  
HS 29280090

For microdetermination of superoxide dismutase (2). Peroxidase reagent (1).

Assay (titr.) min. 95.0 %

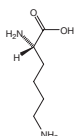
**References:**

- Freeman, T.M. & Seitz, W.R. (1978) Anal. Chem. **50**, 1242-6
- Huu, T.P. et al. (1984) Anal. Biochem. **142**, 467-2
- Roswell, D.F. & White, E.H. (1978) Methods Enzymol. **57**, 409-23
- Leong, M.M. L. & Fox, G.R. (1990) Methods Enzymol. **184**, 442-51

Cat.No.	Size
28085.02	5 g

**L-Lysine** cryst. research grade

(Lys; L-2,6-Diaminohexanoic acid; 2,6-Diaminocaproic acid)  
C<sub>6</sub>H<sub>14</sub>N<sub>2</sub>O<sub>2</sub>·H<sub>2</sub>O ♦ M<sub>r</sub> 164.21 ♦ CAS [39665-12-8]



EINECS 200-294-2 ♦ WGK 1L ♦ HS 29224100  
Storage temperature +2 °C to +8 °C

Essential amino acid used as a supplement in cell culture media, a substrate for enzymes and as a component of poly-lysine polymers, which facilitate the attachment of cells to plastic and glass surfaces.

Assay (titr.) min 98.0 %  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
28195.01	25 g
28195.02	100 g
28195.03	500 g

**Lysozyme from chicken egg white** min. 15 000 units/mg cryst.

(Muramidase; Mucopolysaccharidase; Mucopolysaccharide N-acetyl-muramoylhydrolase)  
EC 3.2.1.17 ♦ M<sub>r</sub> ca. 14 400 ♦ CAS [12650-88-3]

**DANGER**  
H334 ♦ EINECS 235-747-3 ♦ WGK 1 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

Crystalline powder in hydrochloride form. Lysozyme hydrolyzes the β 1 → 4 linkages of the murein between N-acetylmuramic acid and N-acetyl-D-glucosamin, and degrades the heteroglycan chain to disaccharides. This reaction leads to cell lysis in most gram positive bacteria. Lysis can be prevented if the reaction is performed in an isotonic sucrose medium. Under these assay conditions protoplasts are produced which no longer have a cell wall. In gram negative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca<sup>2+</sup> ions are removed by treatment with e.g. EDTA, the murein becomes susceptible to lysozyme. Suitable for hydrolysis of bacterial cell walls and of proteoglycans (1, 2).

**Unit definition:** 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 6.24, in a suspension of *Micrococcus lysodeikticus* as substrate.

**Isoelectric point:** 10.5 - 11.0

**Optimum pH:** 9.2

**References:**

- Imoto, T. et al. (1972) The Enzymes VII, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.22, 1.34, 1.36, 1.38, 17.38, 1.29, B.17)

Cat.No.	Size
28263.01	2,5 g
28263.02	10 g

**Lysyl Endopeptidase®**, MS approved

EC 3.4.21.50 ♦ CAS [72561-05-08]

EINECS 276-716-4 ♦ HS 35079090  
Storage temperature -15 °C to -25 °C \*\*

Approved quality for use with in-gel digestion and mass spectrometric analysis.

Lysyl Endopeptidase, originally isolated from the soil bacterium discovered by Masaki, et al. cleaves specifically the peptide bonds at the carboxy-terminal side of Lysine residues and S-aminoethylcysteine residues with a high degree of specificity, making it a valuable tool for protein sequence analysis and for proteome research. An added feature of Lysyl Endopeptidase is its ability to retain complete activity after incubation in 4M urea or in 0.1 % SDS solution for up to 6 hours at 30 °C.

Cat.No.	Size
20987.01	20 µg

**Macerozyme R-10 from *Rhizopus sp.* lyophil.**

(»Macerating Enzyme«; »Cell Separating Enzyme«)  
EC 3.2.1.15 ♦ CAS [9032-75-1]

**DANGER**  
H334 ♦ EINECS 232-885-6 ♦ WGK 1 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

Macerozyme R-10 is suitable for the isolation of plant cells, and can be used in combination with cellulase »Onozuka R-10« (cat. no. 16419) (1, 2) and with cellulase »Onozuka RS« (cat. no. 16420).

**Activities:** Pectinase ca. 0.5 U/mg

**Unit definition:** 1 U catalyzes the liberation of 1 µmole of reducing groups from pectic acid per minute at 25 °C, pH 4.5 calculated as galacturonic acid. Reducing groups determined with alkaline copper reagent (2).

**Hemicellulase:** ca. 0.25 U/mg

**Unit definition:** 1 U is equivalent to 1 µmole of reducing groups released from beechwood xylan per hour at 37 °C, pH 5.5, calculated as xylose.

**Cellulase:** ca. 0.1 U/mg

**Unit definition:** 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

**pH optimum:** 3.5 - 7.0

**Temperature optimum:** 40 - 50 °C.

**References:**

- Yamada, Y. et al. (1972) Agr. Biol. Chem. **36**, 1055-9
- Barracough, R. & Ellis, R.J. (1979) Eur. J. Biochem. **94**, 165-77
- Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size
28302.02	2,5 g
28302.03	10 g

**Macrogol**

see 33136 Polyethylene glycol 4000, page 83

**Magnesium chloride-6H<sub>2</sub>O** molecular biology grade

MgCl<sub>2</sub>·6H<sub>2</sub>O ♦ M, 203.3 ♦ CAS [7791-18-6]

HS 28273100

DNase/RNase not detected.

Assay (titr., hydrate) 98.0 - 101.0 %  
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size
39771.01	500 g

**Magnesium chloride, solution 1 M** molecular biology grade

HS 38220000

Magnesium chloride is used as a source of magnesium ions in various molecular biology applications like PCR reactions and for the preparation of competent cells for transformation. It is an essential co-factor in many enzymes, including DNase, some restriction enzymes, and Ribonuclease H. DNase/RNase not detected.

**Composition:**

MgCl<sub>2</sub>·6H<sub>2</sub>O (cat. no. 39771) 203.30 g/l

Cat.No.	Size
39772.01	100 ml
39772.02	500 ml

### ■ Magnesium sulfate heptahydrate molecular biology grade

$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$  ♦  $M_r$  246.48 ♦ CAS [10034-99-8]

EG-Index 231-298-2 ♦ WGK 1 ♦ HS 28332100

DNase/RNase not detected.

Assay (titr.) min. 99.5 %  
Heavy metals (as Pb): max. 0.001 %  
Chloride (Cl) max. 0.0005 %

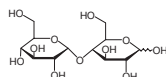
Cat.No.	Size
39773.01	100 g
39773.02	500 g

### ■ D-Maltose research grade

(Maltobiose; 4-O- $\alpha$ -D-Glucopyranosyl-D-glucopyranose)

$\text{C}_{12}\text{H}_{22}\text{O}_{11} \cdot \text{H}_2\text{O}$  ♦  $M_r$  360.32 ♦ CAS [6363-53-7]

EINECS 200-716-5 ♦ WGK 1 ♦ HS 17029010



Used as a substrate for enzymes like maltases, transferases, ATPases, phosphorylases and to study maltose-binding proteins and disaccharide transport systems. It is as well a media supplement for culturing *E. coli* and yeast.

Assay (HPLC) min. 92.0 %  
[ $\alpha$ ] 20 °C/D (c=5 % in water) 135 ° - 137 °  
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size
28390.01	50 g
28390.02	250 g

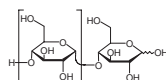
### ■ Maltotriose pure

$\text{C}_{18}\text{H}_{32}\text{O}_{16}$  ♦  $M_r$  504.44 ♦ CAS [1109-28-0]

EINECS 214-174-2 ♦ WGK 1 ♦ HS 29400000

Inducer of the maltose regulon of *E. coli*

Assay (HPLC) min. 90.0 %



Cat.No.	Size
28395.02	1 g

### ■ Mammalian Membrane Protein Extraction Kit

HS 38220000

Storage temperature +2 °C to +8 °C

The Mammalian Membrane Protein Extraction Kit provides a fast and efficient method to extract membrane proteins from mammalian cells and tissues. Native proteins can be obtained within 70 minutes without ultracentrifugation. Up to 90 % efficiency for membrane proteins which have at least 1 – 2 transmembrane domains. The extracted proteins are suitable for SDS PAGE, Western Blot, ELISA, and other functional assays.

Cat.No.	Size
39242.01	1 kit

### ■ Mammalian Nuclear and Cytoplasmic Protein Extraction Kit

HS 38220000

Storage temperature +2 °C to +8 °C

The Mammalian Nuclear and Cytoplasmic Protein Extraction Kit provides a fast and efficient method to extract nuclear and cytoplasmic proteins from mammalian cells and tissues. Native proteins can be obtained within 80 minutes without ultracentrifugation. The extracted proteins are suitable for SDS PAGE, Western Blot, ELISA, enzyme-activity assays, immunoprecipitation and other functional assays.

Cat.No.	Size
39243.01	1 kit

### ■ Mammalian Total Protein Extraction Kit

HS 38220000

Storage temperature -15 °C to -25 °C

The Mammalian Total Protein Extraction Kit provides a fast and efficient method to extract total proteins (cytoplasmic, membrane and nuclear proteins) from mammalian cells and tissues without ultracentrifugation. The extracted proteins are suitable for SDS PAGE, Western Blot, ELISA, and other functional assays.

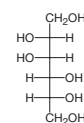
Cat.No.	Size
39241.01	1 kit

### ■ D-Mannitol analytical grade, Ph. Eur.

$\text{C}_6\text{H}_{14}\text{O}_6$  ♦  $M_r$  182.2 ♦ CAS [69-65-8]

EINECS 200-711-8 ♦ WGK 1 ♦ HS 29054300

Assay (HPLC) 98.0 - 102.0 %  
Reducing sugars max. 0.2 %



Cat.No.	Size
28410.03	1 kg

### ■ D-Mannose research grade

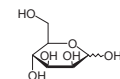
(Carabinose; Seminose)

$\text{C}_6\text{H}_{12}\text{O}_6$  ♦  $M_r$  180.2 ♦ CAS [3458-28-4]

HS 29400000

For biochemistry, microbiology and cell culture.

Assay (HPLC) min. 99.7 %  
MP 128 - 134 °C



Cat.No.	Size
28460.02	50 g

### ■ MEMBRA-CEL® dialysis tubing, MWCO 3500

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width 25 mm  
Nominal dry diameter 16 mm  
Approx. filling volume 2.0 ml/cm  
Nominal dry wall thickness 25  $\mu\text{m}$

Cat.No.	Size
44310.01	5 m
44310.02	30 m

### ■ MEMBRA-CEL® dialysis tubing, MWCO 3500

RC, diameter 22 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width 34 mm  
Nominal dry diameter 22 mm  
Approx. filling volume 3.4 ml/cm  
Nominal dry wall thickness 25  $\mu\text{m}$

Cat.No.	Size
44311.01	5 m
44311.02	30 m

### ■ MEMBRA-CEL® dialysis tubing, MWCO 7000

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width 25 mm  
Nominal dry diameter 16 mm  
Approx. filling volume 2.0 ml/cm  
Nominal dry wall thickness 28  $\mu\text{m}$

Cat.No.	Size
44313.01	5 m
44313.02	30 m

**MEMBRA-CEL® dialysis tubing, MWCO 7000**

RC, diameter 22 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

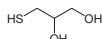
Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.4 ml/cm
Nominal dry wall thickness	30 µm

Cat.No.	Size
44314.01	5 m
44314.02	30 m

**3-Mercapto-1,2-propanediol**

(Thioglycerol)

C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>S ♦ M<sub>r</sub> 108.16 ♦ CAS [96-27-5]



DANGER

H302-H311-H315-H319-H332-H335 ♦ GGVSE/ADR 6.1 III UN2810

♦ IATA 6.1 III UN2810 ♦ EINECS 202-495-0 ♦ WGK 3L ♦

HS 29309099

Filled under argon.

Assay (GC) min. 99.0 %

Cat.No.	Size
28637.01	50 ml

**2-Mercaptoethanol electrophoresis grade**

(Monothioethylene glycol)

C<sub>2</sub>H<sub>6</sub>OS ♦ M<sub>r</sub> 78.13 ♦ CAS [60-24-2]



DANGER

H301-H310-H315-H317-H318-H331-H3

73-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. Tested for use in sample buffers for SDS PAGE.

Assay (titr.) min. 99.0 %

Cat.No.	Size
28626.01	50 ml

**2-Mercaptoethanol**

(Monothioethylene glycol)

C<sub>2</sub>H<sub>6</sub>OS ♦ M<sub>r</sub> 78.13 ♦ CAS [60-24-2]



DANGER

H301-H310-H315-H317-H318-H331-H3

73-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Used as a reducing agent in organic reactions and for retarding oxidation of biological compounds in solution.

Assay (titr.) min. 99.0 %

Cat.No.	Size
28625.01	50 ml
28625.02	500 ml

**2-Mercaptoethanol molecular biology grade**

(Monothioethylene glycol)

C<sub>2</sub>H<sub>6</sub>OS ♦ M<sub>r</sub> 78.13 ♦ CAS [60-24-2]



DANGER

H301-H310-H315-H317-H318-H331-H3

73-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size
39563.01	50 ml
39563.02	500 ml

**MES**

see 29834 Morpholinoethane sulfonic acid, page 73

**Metal Chelate Buffer Pack, includes 1 Buffer A and 1 Buffer B**

HS 38220000

Contents:

250 ml 5 x PBS Buffer A

150 ml 1 x Imidazole Buffer B

Cat.No.	Size
42277.01	1 kit

**Metal Chelate Midi Bulk Pack MC Plugs**

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

Contents:

Quantity: 24 x 1.6 ml Ni-IMAC columns

Max. sample volume per load: 20 ml, swing bucket rotor

Collection tube: 50 ml centrifuge tubes

Min. number of purifications: 48 purifications (2 uses per column)

Typical capacity/preparation: 10 - 15 mg 6 x His-tagged protein

Cat.No.	Size
42274.01	24 pieces

**Metal Chelate Midi Kit - 8 MC Plugs**

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

Contents:

Quantity: 8 x 1.6 ml Ni-IMAC columns

Max. sample volume per load: 20 ml, swing bucket rotor

Collection tube: 50 ml centrifuge tubes

Min. number of purifications: 16 purifications (2 uses per column)

Typical capacity/preparation: 10 - 15 mg 6 x His-tagged protein

Vivaspin 20 ultrafiltration concentrators: 8

Buffers: 5 x PBS Buffer A, 1 x Imidazole Buffer B

Cat.No.	Size
42272.01	1 kit

**Metal Chelate Midi Pack MC Plugs**

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

Contents:

Quantity: 8 x 1.6 ml Ni-IMAC columns

Max. sample volume per load: 20 ml, swing bucket rotor

Collection tube: 50 ml centrifuge tubes

Min. number of purifications: 16 purifications (2 uses per column)

Typical capacity/preparation: 10 - 15 mg 6 x His-tagged protein

Vivaspin 20 ultrafiltration concentrators: None

Buffers: 5 x PBS Buffer A, 1 x Imidazole Buffer B

Cat.No.	Size
42273.01	8 pieces

### ■ Metal Chelate Mini Bulk Pack Mini MC Plugs

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

#### Contents:

Quantity: 72 x 0.23 ml Ni-IMAC columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microfuge tubes  
 Min. number of purifications: 144 purifications (2 uses per column)  
 Typical capacity/preparation: 1 mg 6 x His-tagged protein

Cat.No.	Size
42271.01	72 pieces

### ■ Metal Chelate Mini Kit - 24 Mini MC Plugs

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

#### Contents:

Quantity: 24 x 0.23 ml Ni-IMAC columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microfuge tubes  
 Min. number of purifications: 48 purifications (2 uses per column)  
 Typical capacity/preparation: 1 mg 6 x His-tagged protein  
 Vivaspin 500 ultrafiltration concentrators: 24  
 Buffers: 5 x PBS Buffer A, 1 x Imidazole Buffer B

Cat.No.	Size
42269.01	1 kit

### ■ Metal Chelate Mini Pack Mini MC Plugs

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

#### Contents:

Quantity: 24 x 0.23 ml Ni-IMAC columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microfuge tubes  
 Min. number of purifications: 48 purifications (2 uses per column)  
 Typical capacity/preparation: 1 mg 6 x His-tagged protein  
 Buffers: 5 x PBS Buffer A, 1 x Imidazole Buffer B

Cat.No.	Size
42270.01	24 pieces

### ■ Metal Chelate Mini Sample Kit - 4 Mini MC Plugs

HS 38220000

The Proteus IMAC kit is designed for simple, rapid His-tagged recombinant protein purification from a cell lysate under native or denaturing conditions. Proteus spin columns replace lengthy and expensive chromatographic methods such as FPLC. Metal chelate affinity chromatography is a rapid one-step purification, which removes most contaminants and can achieve purities close to homogeneity.

#### Contents:

Quantity: 4 x 0.23 ml Ni-IMAC columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microfuge tubes  
 Min. number of purifications: 8 purifications (2 uses per column)  
 Typical capacity/preparation: 1 mg 6 x His-tagged protein  
 Vivaspin 500 ultrafiltration concentrators: 4  
 Buffer: 5 x PBS Buffer A, 1 x Imidazole Buffer B

Cat.No.	Size
42268.01	1 kit

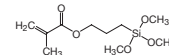
### ■ Metal Chelate Mini Sample Pack Mini MC Plug

HS 38220000

Cat.No.	Size
42267.01	1 piece

### ■ 3-Methacryloxypropyltrimethoxysilane (Bind-Silane)

(Polyfix 1000; Bind-Silane)

C<sub>10</sub>H<sub>20</sub>O<sub>5</sub>Si ♦ M<sub>r</sub> 248.4 ♦ CAS [2530-85-0]

#### WARNING

H315-H319-H335 ♦ EINECS 219-785-8 ♦ WGK 1 ♦ HS 29161400  
 Storage temperature +2 °C to +8 °C

Used to covalently attach polyacrylamide gels to the surface of glass plates. The gel stays firmly attached to the glass during staining and drying procedures.

Assay (GC) 98.0 - 100.0 %

Cat.No.	Size
28739.01	100 ml

### ■ Methanol analytical grade

CH<sub>4</sub>O ♦ M<sub>r</sub> 32.04 ♦ CAS [67-56-1]

#### DANGER

H225-H301-H311-H331-H370 ♦ EG-

Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦

IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Solvent used in biochemical applications, as fixative in immunofluorescence and histology and in transfer buffer for Western Blotting.

Suitable in combination with methanol for protein precipitation according to Wessel & Flügge (1).

Assay (GC) min. 99.8 %  
 Density (20 °C) 0.7915  
 Water max. 1000 ppm  
 Acidity max. 20 ppm  
 Residue on evaporation max. 10 ppm

#### References:

1. Wessel, D Flügge, U.I. (1984) Anal. Biochem. **138**, 141-43

Cat.No.	Size
45631.01	1 L
45631.02	2,5 L

### ■ Methanol for HPLC

CH<sub>4</sub>O ♦ M<sub>r</sub> 32.0 ♦ CAS [67-56-1]H<sub>3</sub>C-OH

#### DANGER

H225-H301-H311-H331-H370 ♦ MAK/TRK 200

ml/m<sup>3</sup>; 270 mg/m<sup>3</sup> ♦ EG-Index 603-001-00-X ♦

GGVSE/ADR 3 II UN1230 ♦ IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1L HS 29051100

Special grade for use as a mobile phase in chromatographic applications like reversed-phase liquid chromatography.

Assay min. 99.8 % (GC)  
 Density (20 °C) 0.7910 - 0.7920  
 Boiling point 64.5 - 65.0 °C  
 Refractive Index 1.3310

#### Maximum Impurity Levels:

Water max. 0.05 %  
 Acidity max. 0.001 %  
 Residue on evaporation max. 0.0005 %

#### Minimum Transmission Levels

1 cm cell compared against HPLC-water  
 210 nm ≧ 25.0 %  
 230 nm ≧ 70.0 %  
 240 nm ≧ 85.0 %  
 260 nm ≧ 98.0 %

Cat.No.	Size
45630.01	2,5 L



**Methanol for UHPLC-MS**

CH<sub>4</sub>O ♦ M<sub>r</sub> 32.0 ♦ CAS [67-56-1]



**DANGER**  
H225-H301-H311-H331-H370 ♦ MAK/TRK 200  
ml/m<sup>3</sup>; 270 mg/m<sup>3</sup> ♦ EG-Index 603-001-00-X  
♦ GGVSE/ADR 3 II UN1230 ♦ IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦  
WGK 1 L ♦ HS 29051100

Special grade for excellent performance in ultra high performance liquid chromatography-tandem mass spectrometry (UHPLC-MS/MS).

Assay (GC)	min. 99.99 %
Refractive index (20 °C)	1.3270 - 1.3300
Acidity	≤ 0.0003 meq/g
Alkalinity	≤ 0.0006 meq/g
Water (KF)	≤ 200 ppm
Residue on evaporation	≤ 1 ppm

**Transmittance**

210 nm	min. 40.0 %
225 nm	min. 70.0 %
230 nm	min. 80.0 %
≥ 260 nm	min. 98.0 %

**Fluorescence (quinine)**

254 nm	max. 1 ppb
365 nm	max. 1 ppb

**UHPLC gradient peak**

220 nm	max. 4 mAU
235 nm	max. 2 mAU
Drift at 220 nm	max. 30 mAU
Drift at 235 nm	max. 10 mAU

**Test LC-MS TIC (50 – 2000 m/z)**

<b>ES I(+)</b>	
Sensitive impurities (reserpine)	max. 30 ppb

**Metal Compounds**

Na/K/Ca	max. 50 ppb
Al/Fe/Mg	max. 20 ppb

Microfiltered, 0.1 µm

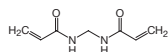
Cat.No.	Size
45635.01	2,5 L

**Methyl Violet 10B**

see 27335 Crystal Violet, page 32

**N,N'-Methylene bisacrylamide 2X analytical grade**

(Bis(acrylamido)methane)  
C<sub>7</sub>H<sub>10</sub>N<sub>2</sub>O<sub>2</sub> ♦ M<sub>r</sub> 154.2 ♦ CAS [110-26-9]



**WARNING**  
H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900  
Storage temperature +2 °C to +8 °C

Cross-linking agent for making polyacrylamide gels for use in protein and nucleic acid electrophoresis.

Assay (titr.)	min. 98.0 %
A 290 nm/1 % in water	max. 0.25
pH 1 % in water	5.5 - 7.5

Cat.No.	Size
29195.02	50 g
29195.03	250 g

**N,N'-Methylene bisacrylamide 2X solution 2 % (w/v)**

WGK 1 ♦ HS 29241900  
Storage temperature +2 °C to +8 °C

N,N'-Methylene bisacrylamide 2X solution. Solution contains 2 % (w/v) highly purified »Bis« in deionized water.

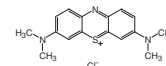
Cross-linking agent for making polyacrylamide gels for use in protein and nucleic acid electrophoresis.

A 290 nm 1:1 in water	ca. 0.25
pH 1:1 in water	6.0 - 8.0

Cat.No.	Size
29197.01	1 L

**Methylene Blue**

(Basic Blue 9; Methylene blue chloride; Methylthionine chloride)



C.I.52015 ♦ C<sub>16</sub>H<sub>18</sub>N<sub>3</sub>S<sup>+</sup>Cl<sup>-</sup> ♦ M<sub>r</sub> 319.86 ♦  
CAS [61-73-4]

**WARNING**

H302 ♦ EINECS 200-515-2 ♦ WGK 2L ♦ HS 32049000

Standardized according to DIN 58981. Methylene blue is very sensitive to oxidation and usually contains demethylated products, called Azure A, B and C and thionine. For staining and detecting RNA in PAGE (as 0.1 % solution in water). Water soluble nuclear staining dye, mostly used for staining of blood cells.

λ max. (0.0001 % in water)	655 - 670 nm
A 1 cm/λ max./0.0001 % in water	min. 0.17

**References:**

1. Herrini & Schmidt (1988) Rapid, reversible staining of Northern Blots prior to hybridization. *BioTechniques* 6, 196

Cat.No.	Size
29198.01	25 g

**Methylnadic anhydride pract.**

(NMA; EPON hardener MNA; Methylnorbornene-2,3-dicarboxylic anhydride; Nadic methyl anhydride)

C<sub>10</sub>H<sub>10</sub>O<sub>3</sub> ♦ M<sub>r</sub> 178.19 ♦ CAS [25134-21-8]



**DANGER**  
H302-H315-H317-H318-H331-H334 ♦ GGVSE/  
ADR 6.1 II UN2810 ♦ IATA 6.1 II UN2810 ♦  
EINECS 246-644-8 ♦ WGK 3 ♦ HS 29172000

Hardener component for polyester and epoxy resins, for example EPON embedding.

d20 °C	1.20 - 1.25
Refractive index	1.5040 - 1.5080

Cat.No.	Size
29452.01	100 ml
29452.02	250 ml
29452.03	1 L

**Methylnorbornene-2,3-dicarboxylic anhydride**

see 29452 Methylnadic anhydride, page 72

**N-Methylphenazinium methylsulfate**

see 32030 Phenazine-methosulfate, page 81

**Methyltrioctyl ammonium chloride**

see 37076 Trioctylmethylammonium chloride, page 140

**Mineral oil molecular biology grade**

(Paraffin oil, low viscosity)  
CAS [8042-47-5]

EINECS 232-455-8 ♦ WGK 1L ♦ HS 27101985

DNase/RNase not detected. Suitable for overlaying aqueous reactions and centrifuge gradients.

Cat.No.	Size	EUR
39776.01	50 ml	24,00

**Mini Pro 300 V**

HS 90272000

Combining small size and versatility, the new Mini Pro 300 V power supply is an ideal choice for any researcher. The two terminators allow the simultaneous run of two electrophoresis chambers, saving both time and valuable bench space. Capable of providing constant voltage or constant current in 1 V or 1 mA steps, the unit is perfectly suited to run both vertical polyacrylamide or horizontal agarose gel electrophoresis experiments.

- ◆ 300 V, 400 mA, 60 W output
- ◆ Two pairs of outlet terminals
- ◆ Time with alarm function
- ◆ Constant voltage or constant current options

Cat.No.	Size
MINI-300	1 piece

### M9-Minimal salts 5x, powder 52.5 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and plasmid amplification in molecular biology  
 30 g/l  $\text{Na}_2\text{HPO}_4$   
 15 g/l  $\text{KH}_2\text{PO}_4$   
 5 g/l  $\text{NH}_4\text{Cl}$   
 2.5 g/l NaCl

For making 1 L 5x concentrate dissolve 52.5 g in 1 L distilled water and sterilize by autoclaving. The 5x concentrate can be stored and diluted as needed to prepare 5 L of 1x M9 minimum salts.

#### References:

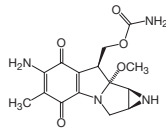
1. Sambrook, J., et al., Molecular Cloning : A Laboratory Manual, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size
48505.01	525 g

### Mitomycin C lyophil. research grade

 $\text{C}_{15}\text{H}_{18}\text{N}_4\text{O}_5$  ♦ M<sub>r</sub> 334.3 ♦ CAS [50-07-7]


DANGER  
 H302-H351 ♦ EINECS 200-008-6 ♦  
 WGK 3L ♦ HS 29419000



Potent anti-tumor antibiotic isolated from *Streptomyces caespitosus*. Belongs to the group of aziridine-containing natural products. Causes intra- and interstrand crosslinks in DNA, which prevent dissociation of the strands, and thus inhibits replication and transcription of DNA. Each vial contains 48 mg sodium chloride as diluent.

#### References:

1. Tomasz, M. et al. (1987) Science **235**, 1204-8
2. de Klein, A. et al. (2000) Curr. Biol. **10**, 479-82
3. Martin, T.W. et al. (2002) Structure **10**, 933-42
4. Mai, Q. et al. (2007) Cell Res. **17**, 1008-19

Cat.No.	Size
29805.01	2 mg

### Mitsubishi Videoprinter P95DE

HS 90278080

Cat.No.	Size
P95DE.01	1 piece

### Molecular Weight Markers for DNA

see 39314 SERVA DNA Standard 1 Kbp DNA Ladder lyophilized, page 105

### Molecular Weight Markers for Proteins

see 39250 SERVA Unstained Protein Standard IV, page 115

### Monothioethylene glycol

see 28626 2-Mercaptoethanol, page 70

### MOPS

see 29836 Morpholinopropane sulfonic acid, page 73

### Morpholinoethane sulfonic acid analytical grade

(MES)

 $\text{C}_6\text{H}_{13}\text{NO}_4\text{S}$  ♦ M<sub>r</sub> 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

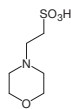
pKa 20 = 6.15. Buffering substance for biochemistry and molecular biology (1). Physical constants (2).

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.1
280 nm	max. 0.1
pH 10 % in water	2.5 - 4.0

#### References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
2. Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size
29834.02	100 g
29834.04	500 g
29834.03	1 kg



### Morpholinoethane sulfonic acid, monohydrate analytical grade

(MES)

 $\text{C}_6\text{H}_{13}\text{NO}_4\text{S}\cdot\text{H}_2\text{O}$  ♦ M<sub>r</sub> 213.25 ♦ CAS [145224-94-8]

EINECS 224-632-3 ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.05
280 nm	max. 0.02
pH 1 % in water	2.5 - 4.0

#### References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
2. Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size
29830.03	1 kg

### Morpholinopropane sulfonic acid analytical grade

(MOPS)

 $\text{C}_7\text{H}_{15}\text{NO}_4\text{S}$  ♦ M<sub>r</sub> 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

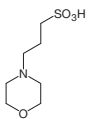
pKa 20 = 7.2. Buffering substance for biochemistry, molecular and cell biology. Buffer component for isoelectric focussing and SDS PAGE. Substitute for  $\text{HCO}_3^-/\text{CO}_2$ -buffer in cell culture for muscle studies.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.1
280 nm	max. 0.08
pH 10 % in water	3.0 - 5.0

#### References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size
29836.02	100 g
29836.03	500 g
29836.04	1 kg



### MP 310 Power Supply

HS 90272000

The Major Science MP 310 power supply is a microprocessor-controlled power supply with full control range of designated current and/or voltage. Its maximum voltage output is 300 V. MP 310 is designed to meet most electrophoresis needs in a personal, single, easy to use unit. It is capable of running horizontal and vertical electrophoresis (like 2D electrophoresis, SDS PAGE applications). In addition, a timer with alarm function is also equipped in the unit, and so is pause function. Furthermore, the powerful specifications plus four terminator pairs can be used to run four units in parallel. The compact design of stackability is another feature to save benchtop space.

- ◆ Advanced power capacity: 300 V, 700 mA, 150 W
- ◆ Wide applications for DNA, RNA, and protein electrophoresis
- ◆ Microprocessor controlled
- ◆ Constant voltage or constant current
- ◆ Four pairs of outlet terminator
- ◆ Timer with alarm function
- ◆ Advanced safety devices
- ◆ Stackability
- ◆ Compact size

Cat.No.	Size
MP-310	1 piece

**MP 320 Power Supply**

HS 90272000

In addition to running standard horizontal agarose and vertical polyacrylamide gels, the MP 320 power supply easily handles all your blotting applications. Its microprocessor control offers constant voltage, constant current or constant power and pause/resume run capability during timed or continuous operation. MP 320 is fully programmable, offering up to 6 multi-step settings and saving up to 30 programs, and capable of running 4 cells simultaneously. Its design provides a compact and modern stackable case, and a 2.6" LCD screen, which displays all the running / setting conditions. Safety devices include no load detection, leakage detection, sudden load change, over temperature protection, and over load detection.

- ◆ 300 V maximum voltage
- ◆ 3000 mA maximum current
- ◆ 300 W maximum power
- ◆ Four pairs of outlet terminals
- ◆ Timer with alarm function
- ◆ Constant voltage or constant current operation
- ◆ Advanced safety device design
- ◆ Compact size
- ◆ Stackable case
- ◆ Wide applications for DNA, RNA and protein electrophoresis

Cat.No.	Size
MP-320	1 piece

**MP 510 Power Supply**

HS 90272000

The MP 510 power supply is a microprocessor controlled power supply that covers the broadest range of applications. It offers constant voltage, constant current or constant power. Pause/resume run capability during timed or continuous operation is allowed. MP 510 is a fully programmable model, offering up to 6 multi-step settings and saving up to 30 programs, and capable for running 4 electrophoresis systems simultaneously. Its design provides a compact and modern stackable case, and a 2.6" LCD screen, showing all the running / setting conditions. Safety devices include no load detection, leakage detection, sudden load change detection, over temperature protection, and over load detection.

- ◆ 500 V maximum voltage
- ◆ 800 mA maximum current
- ◆ 300 W maximum power
- ◆ Four pairs of outlet terminals
- ◆ Timer with alarm function
- ◆ Advanced safety device design
- ◆ Compact size
- ◆ Stackable case
- ◆ Wide applications for DNA, RNA and protein electrophoresis

Cat.No.	Size
MP-510	1 piece

**MS 222**

see 12396 3-Aminobenzoic acid ethyl ester-methanesulfonate, page 10

**MS White Light Table A4**

HS 90278017

White light table with filter size of 210 x 297 mm. Suitable for digital image analysis and other daily routine work.

Cat.No.	Size
DI-WLA4	1 piece

**MTT**

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide, page 35

**Murashige and Skoog Minimal Organic Powder Medium**



**DANGER**  
H271 ◆ GGVSE/ADR 5.1 III UN1479 ◆ IATA 5.1 III UN1479 ◆ HS 38210000

Storage temperature +2 °C to +8 °C

Murashige and Skoog Plant Salts **with** i-inositol and thiamine hydrochloride. **Without** agar and **without** sucrose.

**Supplements:**  
Agar (cat. no. 11396) 8 g/l  
Sucrose (cat. no. 35579) 30 g/l

**References:**  
1. Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size
47515.04	10 L
47515.03	5 x 10 L

**Murashige and Skoog Plant Salts**



**DANGER**  
H271 ◆ GGVSE/ADR 5.1 III UN1479 ◆ IATA 5.1 III UN1479 ◆ HS 38210000

Murashige and Skoog Plant Salts without i-inositol and thiamine hydrochloride. Without agar and without sucrose.

**References:**  
1. Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size
47516.03	50 L

**Mycodecon**



**DANGER**  
H225-H318-H336 ◆ GGVSE/ADR 3 II UN1987 ◆ IATA 3 II UN1987 ◆ HS 38089490

Highly effective disinfectant, particularly active against mycoplasma, but also against bacteria, virus and fungus.

One of the sources of mycoplasma contamination is the formation of aerosols that can occur during handling of infected cells. Cell culture labs should therefore thoroughly disinfect all surfaces of the laboratories and equipment, including benches, incubators, storage boxes of cells, liquid nitrogen containers.

Mycodecon is an alcohol based, non-corrosive and non-carcinogenic solution which can be easily sprayed on all surfaces without leaving any traces.

Supplied in a spray bottle (250 ml) or as refill (500 ml).

Cat.No.	Size
34206.01	250 ml
34206.02	500 ml

**Mycorase Solution (50x) for mycoplasma removal**

HS 38220000

Storage temperature -15 °C to -25 °C \*\*

Mycorase is a highly effective antibiotic solution especially developed for safe eradication of mycoplasma contamination in most cell lines. It is active against a broad range of different mycoplasma strains without effect on eukaryotic cell proliferation.

- ◆ Ready-to-use solution
- ◆ Broad range of action
- ◆ Safe eradication without effect on cell proliferation
- ◆ Permanent cure for most cell types

Cat.No.	Size
47987.01	100 ml

**Mycostatin**

see 29870 Nystatin min. 4 400 units/mg, page 79

**Myoglobin equine lyophil.**

$M_r$  ca. 17 800 ♦ CAS [100684-32-0]

EINECS 309-705-0 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

From skeletal muscle; consisting mainly of metmyoglobin (Fe<sup>3+</sup>-form).

Assay (SDS PAGE)	min. 95.0 %
pI	7.3
Iron content	ca. 0.3 %

**References:**

1. Takano, T. (1977) J. Mol. Biol. **171**, 31-59

Cat.No.	Size
29895.01	100 mg

**NAD**

see 30311 β-Nicotinamide adenine dinucleotide, page 77

**NADH**

see 30312 β-Nicotinamide adenine dinucleotide reduced-Na<sub>2</sub>-salt, page 77

**Nadic methyl anhydride**

see 29452 Methylnadidic anhydride, page 72

**NADPH**

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced ·Na<sub>4</sub>-salt, page 77

**Naphthol-AS-D-chloroacetate pure**

C<sub>20</sub>H<sub>16</sub>NO<sub>3</sub>Cl ♦  $M_r$  353.8 ♦ CAS [35245-26-2]

EINECS 252-463-5 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

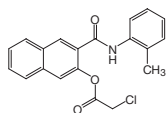
Histochemical substrate for esterase with improved stability.

Assay (HPLC) min. 97.0 %

**References:**

1. Burstone, M.S. (1957) Arch. Pathol. **63**, 164-7  
2. Moloney, W. et al. (1960) J. Histochem. Cytochem. **8**, 200-7

Cat.No.	Size
29995.01	250 mg
29995.02	1 g



**Naphthol-AS-MX-phosphate research grade**

C<sub>19</sub>H<sub>16</sub>NO<sub>3</sub>P ♦  $M_r$  371.32 ♦ CAS [1596-56-1]

H315-H319-H335 ♦ EINECS 216-480-1 ♦

HS 29241900

Storage temperature -15 °C to -25 °C

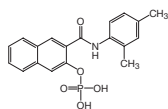
Selective substrate of alkaline phosphatase. Suitable for dye coupling. Fast Blue RR (1).

Assay (HPLC) min. 99.0 %

**References:**

1. Makler, M.T. et al. (1981) Clin. Chem. **27**, 1609-13

Cat.No.	Size
30002.01	250 mg



**Naphthol-AS-BI-phosphate research grade**

(6-Bromo-2-phosphohydroxy-3-naphthoic acid o-anisidide)

C<sub>18</sub>H<sub>15</sub>BrNO<sub>6</sub>P ♦  $M_r$  452.2 ♦ CAS [1919-91-1]

H315-H319-H335 ♦ EINECS 217-645-0 ♦  
WGK 1 ♦ HS 29322985

Storage temperature -15 °C to -25 °C

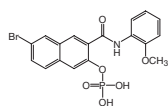
Histochemical substrate for phosphatase.

Purity (HPLC) min. 95.0 %

**References:**

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 914, Little, Brown & Co., Boston

Cat.No.	Size
29988.02	500 mg
29988.03	1 g



**1-Naphthyl acetate analytical grade**

(α-Naphthyl acetate; Acetic acid α-naphthyl ester)

C<sub>12</sub>H<sub>10</sub>O<sub>2</sub> ♦  $M_r$  186.21 ♦ CAS [830-81-9]

EINECS 212-599-8 ♦ HS 29153900

Storage temperature +2 °C to +8 °C

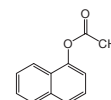
Substrate for esterases.

Assay (HPLC) min. 99.0 %  
MP 42 - 46 °C

**References:**

1. Mastropaolo, W. & Yourno, J. (1981) Anal. Biochem. **115**, 188-93

Cat.No.	Size
30040.01	25 g



**1-Naphthyl phosphate-Na-salt analytical grade**

(Sodium-1-naphthyl hydrogen phosphate)

C<sub>10</sub>H<sub>8</sub>O<sub>4</sub>P·Na·H<sub>2</sub>O ♦  $M_r$  264.15 ♦ CAS [81012-89-7]



**WARNING**

H315-H319-H335 ♦ EINECS 220-171-7 ♦  
HS 29199000

Storage temperature +2 °C to +8 °C

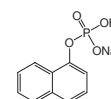
Specially purified product for assay of phosphatase activity.

Assay (titr.) min. 98.0 %  
Free naphthol max. 0.01 %

**References:**

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 882, Little, Brown & Co., Boston

Cat.No.	Size
30130.03	5 g



**Native Anode Buffer for BN/CN (10x)**

HS 38220000

Running buffer for the use as anode buffer in Blue or Clear Native PAGE. Supplied as 10x concentrate. Contains 500 mM BisTris-HCl (pH 7.0).

Cat.No.	Size
42535.01	1 L

**Native Cathode Buffer for BN/CN (10x)**

HS 38220000

Running buffer for the use as cathode buffer in Blue or Clear Native PAGE. Supplied as 10x concentrate. Contains 500 mM Tricine, 150 mM BisTris.

Cat.No.	Size
42536.01	500 ml

**NBT**

see 30550 Nitro blue tetrazolium chloride, page 78

**NC 2 Nitrocellulose Membrane**

Pore size 0.2 μm, format: 30 cm x 3 m

CAS [9004-70-0]



**WARNING**

H228 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦  
HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

**References:**

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203  
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size
71224.01	1 roll

**NC 2 Nitrocellulose Membrane**

Pore size 0.2 µm, format: 80 mm x 85 mm

CAS [9004-70-0]



WARNING

H228 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

**References:**

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size
71222.01	10 pieces

**NC 2 Nitrocellulose Membrane**

Pore size 0.2 µm, format: 20 cm x 20 cm

CAS [9004-70-0]



WARNING

H228 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

**References:**

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size
71223.01	5 sheets

**NC 45 Nitrocellulose Membrane**

Pore size 0.45 µm, format: 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size
71208.01	1 roll

**NC 45 Nitrocellulose Membrane**

Pore size 0.45 µm, format: 88 mm x 88 mm

CAS [9004-70-0]



WARNING

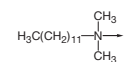
H228 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size
42516.01	10 sheets

**NDSB-201 research grade**

(Non-Detergent Sulfobetaine 201; PPS; 3-(1-Pyridino)-1-propane sulfonate; 1-(3-Sulfopropyl)pyridinium betain)  
C<sub>8</sub>H<sub>11</sub>NO<sub>3</sub>S ♦ CAS [15471-17-7]



HS 29333999

A non-detergent sulfobetaine with zwitterionic properties. Easily removed by dialysis. Similar to zwitterionic detergent, but does not form micelles due to too short hydrophobic side chains. It prevents protein aggregation and facilitates the renaturation of chemically and thermally denatured proteins. Suitable for solubilization of proteins for proteomic applications.

Assay (HPLC dried) min. 99.0 %

**References:**

1. Goldberg, M., E., et al., (1996), Folding & Design **1**, 21
2. Vuillard, L., et al., (1995), Biochem. J. **305**, 337

Cat.No.	Size
20762.02	250 g

**Neodol PB**

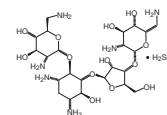
see 35796 Teepol 610, page 138

**Neomycin-sulfate research grade, Ph. Eur.**

C<sub>23</sub>H<sub>46</sub>N<sub>8</sub>O<sub>13</sub> · xH<sub>2</sub>SO<sub>4</sub> ♦ M<sub>r</sub> 614.7 (base) ♦ CAS [1405-10-3]



DANGER



H315-H317-H319-H334-H335-H361d ♦ EINECS 215-773-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Min. 680 U/mg. Aminoglycoside antibiotic complex. Inhibits protein biosynthesis by binding to the 30S subunit of bacterial ribosomes. Causes misreading of mRNA.

**References:**

1. Cox, D. et al. (1977) in: Sammes, P.B. (ed.) Topics in antibiotics chemistry vol. I. Chichester: Horwood, pp. 1-90
2. Lancini, G. & Parenti, F. (1982) Antibiotics, Springer, New York

Cat.No.	Size
30250.01	10 g
30250.03	100 g

**NetFix™ for PAG Size: 265 mm x 125 mm**

HS 38220000

NetFix™ is an inert, reinforcing fabric which serves as an ideal support for gel layers. The polyester fabric is activated to bind polyacrylamide.

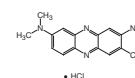
NetFix is a registered trademark of SERVA.

Cat.No.	Size
42775.01	36 pieces

**Neutral Red pure**

(Basic Red 5; Toluylene Red; 3-Amino-7-dimethylamino-2-methylphenazinium-chloride)

C.I.50040 ♦ C<sub>15</sub>H<sub>17</sub>N<sub>4</sub> · Cl ♦ M<sub>r</sub> 288.8 ♦ CAS [553-24-2]



EINECS 209-035-8 ♦ WGK 2L ♦ HS 32041300

Indicator pH 6.8 - 8.0. For use in histology and supravital staining.

λ max. 523 nm - 533 nm

A 1 cm/0.001 % in water

528 nm

ε528 nm/water

min. 0.5

min. 14 440

Cat.No.	Size
30305.01	25 g



**Ni-Extrachel Agarose Resin**

HS 38220000  
Storage temperature +2 °C to +8 °C

The resin has a polychelator ligand covalently coupled to a highly crosslinked agarose resin and is loaded with nickel ions.  
Ni-Extrachel Agarose Resin works in presence of EDTA, DTT and other chemicals, which result in stripping of the metal ions with standard Ni-NTA or -IDA resins.  
Its specificity and stability allows a one-step purification without the need of pretreatment of samples for removal of nickel stripping agents.  
Suitable for batch, gravity and high pressure column purification.  
Binding capacity: > 80 mg/ml gel.

Cat.No.	Size
42180.01	25 ml
42180.02	100 ml

**Ni<sup>2+</sup>-IDA-Metal Chelate Sepharose Resin**

HS 38220000

Ni<sup>2+</sup>-IDA Metal Chelate Agarose Resin designed for affinity purification of polyhistidine tagged proteins. Nickel ions are carefully loaded onto an agarose matrix via an iminodiacetic acid (IDA) coupled ligand to obtain a stable affinity matrix with a high binding capacity for histidine residues (up to 10 mg/ml determined from *E. coli* cleared lysate). Other metal ions such as Co<sup>2+</sup>, Cu<sup>2+</sup>, and Zn<sup>2+</sup> can also be used resulting in different affinities.  
If required, the nickel ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

**Specifications**

Specificity: Polyhistidine tag  
Matrix: Agarose  
Couples ligand: Iminodiacetic acid (IDA)  
Binding capacity: 10 mg/ml  
Bead size: 45 – 160 µm  
Flow rate: 0.25 – 2 ml/min  
Maximum pressure: 42 psi  
Buffer compatibility: Common aqueous buffers from pH 2 - 12  
Cleaning buffer examples: 30 % ethanol, 1 M NaOH, 0.01 M HCl, 8 M urea, 6 M guanidinium hydrochloride  
Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42316.01	100 ml

**Ni<sup>2+</sup>-IDA-Metal Chelate Sepharose Resin**

HS 38220000

Ni<sup>2+</sup>-IDA Metal Chelate Agarose Resin designed for affinity purification of polyhistidine tagged proteins. Nickel ions are carefully loaded onto an agarose matrix via an iminodiacetic acid (IDA) coupled ligand to obtain a stable affinity matrix with a high binding capacity for histidine residues (up to 10 mg/ml determined from *E. coli* cleared lysate). Other metal ions such as Co<sup>2+</sup>, Cu<sup>2+</sup>, and Zn<sup>2+</sup> can also be used resulting in different affinities.  
If required, the Nickel ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

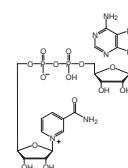
**Specifications**

Specificity: Polyhistidine tag  
Matrix: Agarose  
Couples ligand: Iminodiacetic acid (IDA)  
Binding capacity: 10 mg/ml  
Bead size: 45 – 160 µm  
Flow rate: 0.25 – 2 ml/min  
Maximum pressure: 42 psi  
Buffer compatibility: Common aqueous buffers from pH 2 - 12  
Cleaning buffer examples: 30 % ethanol, 1 M NaOH, 0.01 M HCl, 8 M urea, 6 M guanidinium hydrochloride  
Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42315.01	25 ml

**β-Nicotinamide adenine dinucleotide analytical grade**

(NAD; DPN)  
C<sub>21</sub>H<sub>27</sub>N<sub>7</sub>O<sub>14</sub>P<sub>2</sub> ♦ M<sub>r</sub> 663.43 ♦ CAS [53-84-9]  
EINECS 200-184-4 ♦ WGK 1 ♦ HS 29349990  
Storage temperature +2 °C to +8 °C



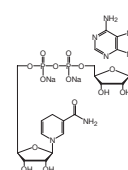
β-Nicotinamide adenine dinucleotide (NAD<sup>+</sup>) forms together with β-Nicotinamide adenine dinucleotide reduced (NADH) a coenzyme redox pair involved in a wide range of enzyme catalyzed oxidation reduction reactions.

Assay (enzym.) min. 94.5 %  
Assay from εNAD 260 nm, pH 7 min. 94.5 %  
Water content (KF) max. 3.5 %

Cat.No.	Size
30311.02	1 g
30311.03	5 g
30311.04	25 g

**β-Nicotinamide adenine dinucleotide reduced·Na<sub>2</sub>-salt research grade**

(NADH; DPNH)  
C<sub>21</sub>H<sub>27</sub>N<sub>7</sub>O<sub>14</sub>P<sub>2</sub>·Na<sub>2</sub> ♦ M<sub>r</sub> 709.4 ♦ CAS [606-68-8]  
EINECS 210-123-3 ♦ WGK 1 ♦ HS 29349990  
Storage temperature -15 °C to -25 °C \*



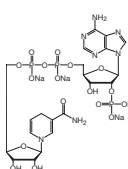
β-Nicotinamide adenine dinucleotide reduced (NADH) forms together with β-Nicotinamide adenine dinucleotide (NAD<sup>+</sup>) a coenzyme redox pair involved in a wide range of enzyme catalyzed oxidation reduction reactions.

Assay (HPLC) min. 98.0 %  
Loss on Drying max. 8.0 %

Cat.No.	Size
30312.01	250 mg
30312.02	1 g

**β-Nicotinamide adenine dinucleotide phosphate reduced·Na<sub>4</sub>-salt analytical grade**

(NADPH; TPNH)  
C<sub>21</sub>H<sub>26</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub>·Na<sub>4</sub> ♦ M<sub>r</sub> 833.4 ♦ CAS [2646-71-1]  
EINECS 220-163-3 ♦ WGK 1 ♦ HS 29349990  
Storage temperature -15 °C to -25 °C \*



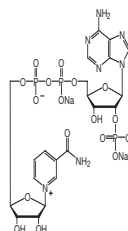
β-Nicotinamide adenine dinucleotide phosphate reduced (NADPH) forms together with β-Nicotinamide adenine dinucleotide phosphate (NADP<sup>+</sup>) a coenzyme redox pair involved in a wide range of enzyme catalyzed oxidation reduction reactions.

Assay (anhydrous) from εNADPH 260 nm (ε = 15 000) min. 80.0 %  
Assay of NADP·Na<sub>4</sub> (enzymatic, 340 nm) min. 79.0 %  
Assay (HPLC) min. 95.0 %  
Water (KF) max. 6.0 %

Cat.No.	Size
30316.02	100 mg
30316.03	500 mg

**β-Nicotinamide adenine dinucleotide phosphate·Na<sub>2</sub>-salt research grade**

(NADP; TPN)  
C<sub>21</sub>H<sub>26</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub>·Na<sub>2</sub> ♦ M<sub>r</sub> 787.4 ♦ CAS [24292-60-2]  
EINECS 246-129-8 ♦ WGK 1 ♦ HS 29349990  
Storage temperature -15 °C to -25 °C



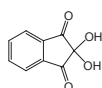
β-Nicotinamide adenine dinucleotide phosphate (NADP<sup>+</sup>) forms together with β-Nicotinamide adenine dinucleotide phosphate reduced (NADPH) a coenzyme redox pair involved in a wide range of enzyme catalyzed oxidation reduction reactions.

Assay (enzymatic) min. 97.0 %  
Water (KF) max. 6.0 %

Cat.No.	Size
30315.02	100 mg
30315.04	1 g
30315.05	5 g

**Ninhydrin analytical grade**

(2,2-Dihydroxy-1,3-indanedione)  
 $C_9H_6O_4$  ♦  $M_r$  178.2 ♦ CAS [485-47-2]



**WARNING**  
 H302-H315-H319-H335 ♦ EINECS 207-618-1 ♦  
 WGK 2 ♦ HS 29144090

Reagent for the detection and assay of amino acids, peptides, amines and amino sugars.

Assay (titr.) min. 99.0 %

**References:**

1. Schönberg, A. & Singer, E. (1978) *Tetrahedron* **34**, 1285-1300

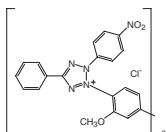
Cat.No.	Size
30410.01	25 g

**Nitro blue tetrazolium chloride analytical grade**

(NBT; Nitro BT; Nitrotetrazolium blue chloride; Ditetrazolium dye)

$C_{40}H_{30}Cl_2N_{10}O_6$  ♦  $M_r$  817.7 ♦ CAS [298-83-9]

**WARNING**  
 H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦  
 HS 29339980



Storage temperature +2 °C to +8 °C

A ditetrazolium compound for demonstrating succinic dehydrogenase activity (1), glucose-6-phosphate dehydrogenase (2) and xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

**Stock solution:** 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

**Staining solution for Western Blots:** 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl<sub>2</sub>, 100 mM Tris; pH 9.5)

Purity min. 98.0 %

**References:**

1. Nachlas, M.M. et al. (1957) *J. Histochem. Cytochem.* **5**, 420-36  
 2. Negi, D.S. & Stephens, R.J. (1977) *J. Histochem. Cytochem.* **25**, 149-54  
 3. Auscher, C. & Amory, N. (1976) *Biomedicine* **5**, 37-8

Cat.No.	Size
30550.01	250 mg
30550.02	1 g
30550.03	5 g

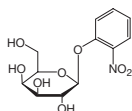
**Nitro BT**

see 30550 Nitro blue tetrazolium chloride, page 78

**2-Nitrophenyl-β-D-galactopyranoside research grade**

(ONPG)  
 $C_{12}H_{15}NO_8$  ♦  $M_r$  301.3 ♦ CAS [369-07-3]

EINECS 206-716-1 ♦ WGK 1 ♦ HS 29389090  
 Storage temperature +2 °C to +8 °C



Substrate for β-D-galactosidase.

Purity (HPLC) > 99.0 %  
 Free nitrophenol max. 500 ppm

**References:**

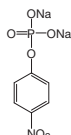
1. Levvy, G.A. & Conchie, J. (1966) *Methods Enzymol.* **8**, 571-84  
 2. Naider, F. et al. (1972) *Biochemistry* **11**, 3202-7

Cat.No.	Size
30710.02	5 g

**4-Nitrophenyl phosphate-Na<sub>2</sub>-salt analytical grade**

(4-NPP)  
 $C_6H_4NO_6P \cdot Na_2 \cdot 6H_2O$  ♦  $M_r$  371.1 ♦ CAS [4264-83-9]

EINECS 224-246-5 ♦ WGK 1 ♦ HS 29199000  
 Storage temperature -15 °C to -25 °C



Filled under nitrogen. High quality substrate for alkaline and acid phosphatase (1).

Assay (HPLC) min. 99.0 %  
 Water (KF) 27 - 31 %  
 Free p-nitrophenol max. 0.1 %

**References:**

1. Lowry, O.H. (1957) *Methods Enzymol.* **4**, 371-2  
 2. Bowers, G. et al. (1981) *Clin. Chem.* **27**, 135-43

Cat.No.	Size
30770.02	25 g
30770.03	100 g

**NMA**

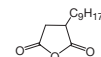
see 29452 Methylnadnic anhydride, page 72

**Non-Detergent SulfoBetaine 201**

see 20762 NDSB-201, page 76

**Nonenylsuccinic anhydride pure**

(NSA; ERL-4206 hardener)  
 $C_{13}H_{20}O_3$  ♦  $M_r$  224.3 ♦ CAS [28928-97-4]



**WARNING**  
 H315-H319-H335 ♦ EINECS 242-317-8 ♦ WGK 1 ♦ HS 29171980

Especially purified for electron microscopy. Hardener component for SPURR embedding.

Cat.No.	Size
30812.01	250 ml

**Norit® A pract.**

(Activated charcoal)  
 CAS [64365-11-3]

HS 38021000

Activated charcoal from peat. Acid washed.

Norit = registered trademark of Norit B.V.

Cat.No.	Size
30890.01	100 g
30890.02	1 kg

**Novobiocin-Na-salt research grade**

$C_{31}H_{35}N_2O_{11} \cdot Na$  ♦  $M_r$  634.6 ♦ CAS [1476-53-5]

**WARNING**  
 H317-H319 ♦ EINECS 216-023-6 ♦ WGK 1 ♦ HS 29419000  
 Storage temperature +2 °C to +8 °C

Coumarin-glycoside antibiotic. Inhibitor of bacterial DNA gyrase (1). Mechanism of action (2).

Antagonist of heat shock protein 90 (Hsp90) (3, 4, 5).

Assay (from N) min. 95.0 %  
 $[\alpha]_{24}^{25}$  °C/D (c=2.5 % in water) -34.0 ° to -38.0 °  
 MP 210 - 220 °C

**References:**

1. Cozzarelli, N.R. (1980) *Science* **207**, 953-60  
 2. Staudenbauer, W.L. (1975) *J. Mol. Biol.* **96**, 201-5  
 3. Marcu, M.G. et al. (2000) *J. Natl. Cancer Inst.* **92**, 242-8  
 4. Marcu, M.G. et al. (2000) *J. Biol. Chem.* **275**, 37181-6  
 5. Sreedhar, A.S. et al. (2003) *J. Biol. Chem.* **278**, 35231-40

Cat.No.	Size
30995.01	1 g

**NSA**

see 30812 Nonenylsuccinic anhydride, page 78

**NTA-Agarose Resins**

see 42139 SERVA Ni-NTA Agarose Resin, page 111

**dNTP PCR Mix, solution 10 mM molecular biology grade**

HS 38220000  
 Storage temperature -15 °C to -25 °C \*\*

Ready to use dNTP mixture for the Tth DNA polymerase and Taq DNA polymerase.

Mixture of dATP, dCTP, dGTP, dTTP, 10 mM of each, free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc. Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions.

Every lot is tested in a 30 kb PCR and real-time PCR reaction.

Purity > 98.0 %  
 pH 8.5 ± 0.1

Cat.No.	Size
39712.01	0,2 ml
39712.02	5 x 0,2 ml

### ■ dNTPs Set, solution 100 mM molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C \*\*

Set of 100 mM solutions of each dATP, dCTP, dGTP, dTTP.

Free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc.

Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions. Every lot is tested in a 30 kb PCR and real-time PCR reaction.

0.25 ml correspond to 25 µmol.

Purity > 99.0 %  
pH 8.5 ± 0.2

Cat.No.	Size
39705.01	4 x 250 µl
39705.02	4 x 1 ml

### ■ Nycodenz®, 60 % (w/v) solution in water

(Nycoprep® Universal)

C<sub>19</sub>H<sub>26</sub>I<sub>3</sub>N<sub>3</sub>O<sub>9</sub> ♦ M<sub>r</sub> 821.1

HS 38220000

Storage temperature +2 °C to +8 °C

Non-ionic density gradient medium, similar to the former Metrizamide but less toxic. Mammalian cells and viruses isolated in Nycodenz® gradients potentially retain better functional integrity than in Metrizamide gradients. Nycodenz® is suitable for the isolation of a wide range of different cell types, viruses, subcellular organelles and other membrane compartments. Gradient preparation and resolution of cellular organelles are largely similar with both media. In contrast to Metrizamide, solutions of Nycodenz® can be sterilized by autoclaving.

Density (20 °C) 1.310 ± 0.002 g/ml  
Osmolarity 580 ± 10 mOsm  
Refractive index (20 °C) 1.4273 ± 0.0003

Nycodenz + Nycoprep = registered trademarks of Axis-Shield, Norway.

#### References:

- Johne, R. & Muller, H. (2004) J. Virol. **78**, 930-7
- Whiteley, A.S. et al. (2003) J. Microbiol. Meth. **54**, 257-67
- Masuya, M et al. (2003) Blood **101**, 2215-18
- Schumacher, M.M. et al. (2002) J. Biol. Chem. **277**, 51033-42
- Jadot, M. et al. (2001) Eur. J. Biochemistry **268**, 1392-99
- Miller, K.E. & Sheetz, M.P. (2000) J. Biol. Chem. **275**, 2598-2606
- Wischmann, B. et al. (1999) Plant. Physiol. **119**, 455-62

Cat.No.	Size
31000.01	50 ml

### □ Nycoprep® Universal

see 31000 Nycodenz®, 60 % (w/v) solution in water, page 79

### ■ Nystatin min. 4 400 units/mg research grade, Ph. Eur.

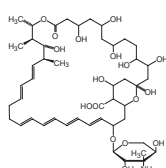
(Fungicidin; Mycostatin)

C<sub>47</sub>H<sub>75</sub>NO<sub>17</sub>·2H<sub>2</sub>O ♦ M<sub>r</sub> 926.13 ♦ CAS [1400-61-9]

EINECS 215-749-0 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Polyene macrolide antibiotic isolated from *Streptomyces noursei*. Used in animal and plant cell cultures against fungi and yeasts. Forms complexes with ergosterol in the fungal cell membrane resulting in the formation of pores and loss of ions and small molecules.



#### References:

- Chong, C.N. et al. (1970) Tetrahedron Lett. **59**, 5145-8
- Coutinho, A. et al. (2004). Biophys. J. **87**, 3264-76
- Leifert, C. et al. (1991) J. Microbiol. Biotechnol. **7**, 452-69
- Constabel, F. & Shyluk, J.P. (1994): Plant Cell and Tissue Culture, eds. I.K. Vasil a. T.A. Thorpe; pp 3-15. Springer Netherlands
- Banu, K.S. et al. (2001) Endocrine Pathol. **12**, 315-27
- Wang, A. et al. (2005) Appl. Environ. Microbiol. **71**, 8397-401
- Funkenstein, B. et al. (2006) Tissue and Cell **38**, 399-415

Cat.No.	Size
29870.01	1 g
29870.02	10 g

### □ ONPG

see 30710 2-Nitrophenyl-β-D-galactopyranoside, page 78

### □ Oramix L30

see 27570 N-Lauroylsarcosine-Na-salt, page 66

### □ Orthophosphoric-monoester phosphohydrolase (alkaline optimum)

see 32471 Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/µl), page 9

### □ Osmic acid

see 31253 Osmium tetroxide, page 79

### □ Osmium (VIII) oxide

see 31253 Osmium tetroxide, page 79

### ■ Osmium tetroxide for electron microscopy

(Osmium (VIII) oxide; Osmic acid)

OsO<sub>4</sub> ♦ M<sub>r</sub> 254.2 ♦ CAS [20816-12-0]

DANGER

H300-H310-H314-H330 ♦ MAK/TRK 0.0002 ml/m<sup>3</sup>, 0.0021 mg/m<sup>3</sup> ♦ EG-Index 076-001-00-5 ♦ GGVSE/

ADR 6.1 I UN2471 ♦ IATA 6.1 I UN2471 ♦ EINECS 244-058-7 ♦ WGK 3 ♦ HS 28259085

Used as a post fix and stain of tissues in scanning and transmission electron microscopy.

Osmium tetroxide reacts with lipids in tissue by oxidation of unsaturated bonds of fatty acids, which adds density and contrast to biological samples. In normal tissues, presence of osmium results in intense black staining. In addition, it is used in electron microscopy for enhancing staining.

Assay min. 99.9 %

Cat.No.	Size
31251.04	250 mg
31251.03	1 g

### ■ Osmium tetroxide 4 % solution for electron microscopy

(Osmic acid; Osmium (VIII) oxide)

OsO<sub>4</sub> ♦ M<sub>r</sub> 254.2

DANGER

H302-H312-H315-H318-H332-H335 ♦ MAK/TRK 0.0002 ml/m<sup>3</sup>, 0.0021 mg/m<sup>3</sup> ♦ WGK 3 ♦ HS 28259085

40 mg/ml in water.

Cat.No.	Size
31253.01	2 ml
31253.02	10 x 2 ml
31253.03	10 ml
31253.04	5 x 10 ml

### □ Ovalbumin

see 11842 Albumin Egg, page 9

### □ 2-Oxetanone

see 33672 β-Propiolactone, page 86

### ■ 10.32 Packing Connector

HS 38220000

Luer/Thread connector for packing FliQ columns.

Cat.No.	Size
42282.01	1 piece

### □ Pancreoelastase E

see 20930 Elastase from porcine pancreas min. 200 U/mg, page 40

### ■ PaperPool

HS 90272000

Tray for soaking the electrode wicks in buffer (up to 80 ml) used for all flatbed gels.

Cat.No.	Size
HPE-A02	1 piece

### □ Paraffin oil, low viscosity

see 39776 Mineral oil, page 72

### □ Paraffin oil, low viscosity

see 14500 Bayol F, page 14

■ **Parafilm™, 0.5 m x 15 m**

HS 39209990

Roll: width 50 cm (20"), length 15 m (50 ft). Supplied in sturdy cardboard container.

Parafilm = registered trademark of American Can Co.

Cat.No.	Size
90300.01	1 roll

■ **Parafilm™, 0.1 m x 38 m**

HS 39209990

Roll: width 10 cm (4"), length 38 m (125 ft). Supplied in dispenser box.

Parafilm = registered trademark of American Can Co.

Cat.No.	Size
90310.01	1 box
90310.02	6 boxes

■ **Paraformaldehyde pure**

(Polyoxymethylene)

(CH<sub>2</sub>O)<sub>n</sub> ♦ M<sub>r</sub> (30.0)<sub>n</sub> ♦ CAS [30525-89-4]



WARNING

H228-H302-H315-H317-H319-H332-H335-H351 ♦  
GGVSE/ADR 4.1 III UN2213 ♦ IATA 4.1 III UN2213  
WGK 2L ♦ HS 2912600

Paraformaldehyde is a cross-linking fixative used in histology, light and electron microscopy and flow cytometry. It is changed to formaldehyde by heating and by adding small amount of sodium hydroxide.

When the samples are to be used in fluorescence studies, paraformaldehyde is recommended as fixative. In histology it is generally preferred over other fixatives as the others result in more silver grains on the tissues.

Assay (titr.) min. 95.0 %

Cat.No.	Size
31628.01	100 g
31628.02	500 g

■ **PBS Buffer (10x) sterile**

(Phosphate buffered salt solution)

HS 38220000

10 x concentrated phosphate buffered salt solution, autoclaved.

PBS buffer is a widely used buffer in protein detection systems like Western Blot analysis, ELISAs and other enzyme assays, for immunocytological and immunohistological detection, *in situ* hybridization, apoptosis assays and staining of nuclei. 1x PBS is as well often used as protein solvent and diluent.

**Composition:**

NaCl (cat. no. 30183) 1.37 M  
KCl (cat. no. 26868) 27 mM  
Na<sub>2</sub>HPO<sub>4</sub> (cat. no. 30200) 100 mM  
KH<sub>2</sub>PO<sub>4</sub> (cat. no. 26870) 20 mM  
pH 7.2 - 7.6

Cat.No.	Size
42595.01	1 L

■ **PBST Buffer (10x) sterile**

(Phosphate buffered salt solution)

HS 38220000

10 x concentrated phosphate buffered salt solution with 0.5 % Tween 20, autoclaved.

PBST buffer is a widely used buffer in protein detection systems like Western Blot analysis, ELISAs and other enzyme assays, for immunocytological and immunohistological detection, *in situ* hybridization, apoptosis assays and staining of nuclei.

**Composition:**

NaCl (cat. no. 30183) 1.37 M  
KCl (cat. no. 26868) 27 mM  
Na<sub>2</sub>HPO<sub>4</sub> (cat. no. 30200) 100 mM  
KH<sub>2</sub>PO<sub>4</sub> (cat. no. 26870) 20 mM  
pH 7.2 - 7.6

Cat.No.	Size
42597.01	1 L

□ **PDT disulfonate**

see 21326 Ferrozine®, page 44

■ **PEFABLOC® SC**

(4-(2-Aminoethyl)benzenesulfonyl fluoride·HCl)

C<sub>8</sub>H<sub>10</sub>NSO<sub>2</sub>F·HCl ♦ M<sub>r</sub> 239.7 ♦ CAS [30827-99-7]



DANGER

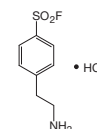
H314 ♦ GGVSE/ADR 8 II UN3261 ♦ IATA 8 II UN3261 ♦  
HS 29214900

Storage temperature +2 °C to +8 °C

Protease inhibitor with major advantages over other inhibitors: Excellent stability at neutral pH. Ready solubility in aqueous buffers. Broad specificity for serine proteases. Minimum effect on cell growth.

Purity (HPLC) min. 95.0 %

Pefabloc = registered Trademark of Pentapharm. Ltd.



Cat.No.	Size
31682.01	100 mg
31682.02	500 mg

■ **Penicillin G-K-salt research grade, Ph. Eur.**

(Benzylpenicillin potassium)

C<sub>16</sub>H<sub>17</sub>N<sub>2</sub>O<sub>4</sub>S·K ♦ M<sub>r</sub> 372.5 ♦ CAS [113-98-4]



WARNING

H317 ♦ EINECS 204-038-0 ♦ WGK 1 ♦  
HS 29411000

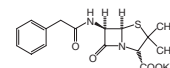
Storage temperature +2 °C to +8 °C

β-Lactam antibiotic. Inhibitor of bacterial cell wall synthesis. Binds to the active site of a transpeptidase which is involved in the synthesis of murein, a major component of the bacterial cell wall. Frequently used in cell culture media to prevent the growth of contaminating bacteria (2), often in combination with streptomycin (3 - 5).

Assay (HPLC) min. 96.0 %

**References:**

1. Keller, N.P. et al. (2005) Nature Reviews Microbiology **3**, 937-47
2. Wang, Z. et al. (2000) Anal. Chem. **72**, 2001-7
3. Haraguchi, N. et al. (2006) Stem Cells **24**, 506-13
4. Souza, G.R. Et al. (2006) PNAS **103**, 1215-20
5. Pedersen, I.M. Et al. (2007) Nature **449**, 919-22



Cat.No.	Size
31749.04	25 g
31749.03	100 g

### ■ Pepsin porcine ca. 15 milliAnson units/mg 2xcryst. lyophil.

(Pepsin A)

EC 3.4.23.1 ♦ M<sub>r</sub> ca. 36 000 ♦ CAS [9001-75-6]

DANGER

H315-H319-H334-H335 ♦ EG-Index 647-008-00-6 ♦  
EINECS 232-629-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins. Pepsin preferentially hydrolyzes those peptide linkages which involve the amino group contributed by the aromatic amino acids phenylalanine, tyrosine and tryptophan.

**Unit definition:** 1 milliAnson unit is equivalent to 1 µmole of Folin-positive amino acids calculated as tyrosine, released from denatured hemoglobin per minute at 37 °C, pH 2.0.

**Activity in other units:** ca. 0.015 PU<sup>hb</sup>/mg („Pepsin-Unit“ according to Anson (1, 2). Expressed in millimole tyrosine, therefore 1 PU<sup>hb</sup> = 1000 milliAnson units.)

#### References:

1. Anson, M.L. (1938) J. Gen. Physiol. **22**, 79-98
2. Ryle, A.P. (1984) Methods of Enzymatic Analysis, (Bergmeyer, H.U. ed.) 3rd Ed. vol. **5**, 223-38
3. Northrop, J.H. et al. (1948) Crystalline Enzymes 2nd ed., Columbia University Press, 305-8

Cat.No.	Size
31820.01	1 g
31820.02	5 g

### ■ Pepstatin A

(Isovaleryl-L-valyl-L-valyl-4-amino-3-hydroxy-6-methylheptanoyl-L- alanyl-4-amino-3-hydroxy-6-methylheptanoic acid; X-Val-Val-statyl-Ala-statin)  
C<sub>34</sub>H<sub>63</sub>N<sub>5</sub>O<sub>9</sub> ♦ M<sub>r</sub> 685.9 ♦ CAS [26305-03-3]

EINECS 247-600-0 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Inhibitor of aspartic proteases, e.g. pepsin, renin, cathepsin D (1 - 3) and of retroviral proteases (4 - 7).

Assay (HPLC) min. 98.0 %

#### References:

1. Umezawa, H. (1976) Meth. Enzymol. **45**, 689-93
2. McCaffrey, G. & Jamieson, J.C. (1993) Comp. Biochem. Physiol. **104**, 91-4
3. Bailly, E. et al. (1991) Exp. Parasitol. **72**, 278-84
4. Baum, E.Z. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10023-7
5. Grinde, B. et al. (1989) AIDS Res. Hum. Retroviruses **5**, 269-74
6. von der Helm, K. et al. (1989) FEBS Lett. **247**, 349-52
7. Katoh, I. et al. (1987) Nature **329**, 654-6

Cat.No.	Size
52682.02	5 mg
52682.03	25 mg

### ■ Peptone from casein enzymatic

HS 35040090

High quality source of peptides and amino acids produced by enzymatic digestion of casein. Refined hydrolysate that has been specially processed to increase solubility. Suitable as nutrient for laboratory media and industrial fermentation.

Total nitrogen (TN) min. 10.0 %

Amino nitrogen (AN) min. 3.9 %

pH (2 % solution) 6.5 - 7.5

Cat.No.	Size
48600.04	250 g
48600.02	1 kg

### ■ Peptone PLUS from casein enzymatic

HS 35040090

Manufactured by controlled enzymatic hydrolysis of casein. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 500 Dalton. For analytical microbiology and industrial fermentation.

Total nitrogen min. 12.5 - 13.5 %

Amino nitrogen 3.0 - 4.0 %

AN/TN x 100 22 - 33

Solubility (5 % in water) complete

pH (5 % solution) 6.5 - 7.5

Cat.No.	Size
48605.02	1 kg

### ■ Peptone from meat pancreatic, Ph. Eur.

HS 35040090

Certificate of Suitability. Produced by controlled enzymatic hydrolysis of animal tissues. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 1000 Dalton. Recommended as source of organic nitrogen in media for analytical microbiology and industrial fermentation.

Total nitrogen 15.0 - 16.0 %

Amino nitrogen 3.0 - 4.0 %

AN/TN x 100 18 - 26

Solubility (5 % in water) complete

pH (5 % solution) 5.0 - 6.0

Cat.No.	Size
48619.02	1 kg

### ■ Peroxidase from horseradish min. 1000 U/mg lyophil.

(POD; HRP; Donor: hydrogen-peroxide oxidoreductase)

EC 1.11.1.7 ♦ M<sub>r</sub> ca. 40 000 ♦ CAS [9003-99-0]

DANGER

H334 ♦ EINECS 232-668-6 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For the determination of peroxide (1). Used as an indicator enzyme in reactions where peroxide is produced (2). For labelling antibodies in ELISA (3, 4). RZ (= A 403/A 275) = 3.0.

**Unit definition:** 1 U catalyzes the decomposition of 1 µmole hydrogen peroxide per minute at 25 °C, pH 7.0; reaction coupled with phenol-aminoantipyrine (5).

**Activity in other units:** min. 250 purpurogallin units/mg

(1 purpurogallin unit catalyzes the oxidation of 1 mg pyrogallol to purpurogallin in 20 seconds at 20 °C and pH 6.0. The purpurogallin is extracted and determined spectrophotometrically at 420 nm (6). 1 mg purpurogallin requires 13.5 µmole peroxide, 1 purpurogallin unit corresponds to the decomposition of 12 µmoles peroxide at 25 °C.)

#### References:

1. Melattini, F. (1985) Methods of Enzymatic Analysis, (Bergmeyer, H.U., ed.) 3rd Ed. vol. **7**, p. 566-71
2. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. vol. **2**, p. 267-8
3. Johnson Jr., R.B. (1980) J. Immunoassay **1**, 27-37
4. Harlow & Lane (1988) Antibodies, Cold Spring Harbor Laboratory Press, p. 349
5. Gallati, H. (1977) J. Clin. Chem. Clin. Biochem. **15**, 699-703
6. Polis, B.D. & Shmukler, H.W. (1963) J. Biol. Chem. **201**, 457-500

Cat.No.	Size
31941.02	10 mg
31941.03	100 mg

### ■ Phenazine-methosulfate pure

(PMS; N-Methylphenazinium methylsulfate)

C<sub>13</sub>H<sub>11</sub>N<sub>2</sub>·CH<sub>3</sub>SO<sub>4</sub> ♦ M<sub>r</sub> 306.34 ♦ CAS [299-11-6]

WARNING

H315-H319-H335 ♦ EINECS 206-072-1 ♦

WGK 1 ♦ HS 29339980

Storage temperature +2 °C to +8 °C

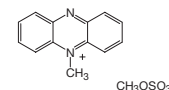
Electron coupler, transfers electrons from NADH to tetrazolium salts, e.g. MTT, and thus makes NAD reductions visible.

Assay (Titr.) min. 98.0 %

#### References:

1. Faber, E. et al. (1958) J. Histochem. Cytochem. **6**, 389
2. Altman, F.P. Biochem. J. **125**, 21P-22P

Cat.No.	Size
32030.01	1 g
32030.02	10 g



### ■ Phenol Red research grade

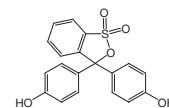
(Phenylsulfonphthalein)

C<sub>19</sub>H<sub>14</sub>O<sub>5</sub>S ♦ M<sub>r</sub> 354.4 ♦ CAS [143-74-8]

EINECS 205-609-7 ♦ WGK 2L ♦ HS 29349990

Indicator pH 6.5 - 8.0. Tested for use in tissue culture.

λmax. 0.0001 % in 0.01 M NaOH 558 - 562 nm



Cat.No.	Size
32095.01	5 g

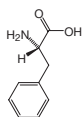


**L-Phenylalanine** research grade, Ph. Eur.

(Phe; L-2-Amino-3-phenylpropionic acid)  
 $C_9H_9NO_2$  ♦  $M_r$  165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %



Cat.No.	Size
32191.02	100 g

**Phenylmethylsulfonyl fluoride** research grade

(PMSF; Benzylsulfonyl fluorid;  $\alpha$ -Toluenesulfonyl fluoride)  
 $C_7H_7FO_2S$  ♦  $M_r$  174.19 ♦ CAS [329-98-6]



DANGER  
 H301-H314 ♦ GGVSE/ADR 8 II UN2923  
 ♦ IATA 8 II UN2923 ♦ EINECS 206-350-2 ♦ WGK 1 ♦



HS 29049095

Inhibits trypsin and chymotrypsin (1). Non-inhibitory to cholineesterase. Less toxic than diisopropylfluorophosphate (2). Inactivation of PMSF in buffer (3).

Assay (GC) min. 99.0 %  
 MP 90 - 94 °C

**References:**

1. Prouty, W.F. & Goldberg, A.L. (1972) J. Biol. Chem. **247**, 3341-52
2. Fahrney, D.E. & Gold, A.M. (1963) J. Am. Chem. Soc. **85**, 997-1009
3. James, G.T. (1978) Anal. Biochem. **86**, 574-9

Cat.No.	Size
32395.02	5 g
32395.03	25 g

**Phosphatase-Inhibitor-Mix I, powder**



DANGER  
 H302-H314-H361 ♦ WGK 1 ♦ HS 38220000

Mixture of 5 water-soluble inhibitors against acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, and protein-tyrosine phosphatase. Contains imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size
39050.01	1 vial
39050.02	5 vials
39050.03	10 vials

**Phosphatase-Inhibitor-Mix II, solution**

HS 38220000  
 Storage temperature +2 °C to +8 °C

Mixture of 7 different inhibitors dissolved in water, suitable for the inhibition of acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, protein-tyrosine phosphatase, and serine/threonine phosphatase.

Contains EDTA,  $\beta$ -glycerophosphate-disodium salt, imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate. 1 ml solution is suitable for the treatment of 100 ml tissue extract.

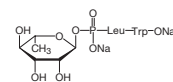
Cat.No.	Size
39055.01	1 vial
39055.02	5 vials
39055.03	10 vials

**Phosphate buffered salt solution**

see 42595 PBS Buffer (10x), page 80

**Phosphoramidon** research grade

(N-( $\alpha$ -Rhamnopyranosyloxyhydroxyphosphinyl)-L-Leu-L-Trp-Na $\cdot$  2H $_2$ O)  
 $C_{23}H_{32}N_3O_{10}PNa_2$  ♦  $M_r$  587.5 ♦ CAS [119942-99-3]



HS 29419000  
 Storage temperature +2 °C to +8 °C

Inhibitor for thermolysin and neutral endopeptidase-24.11 (ANP Degradation Enzyme). Inhibits the activity of 'Endothelin Converting Enzyme' (3 - 9). Microbial product.

Store dry and protect from light!

Assay (HPLC) min. 90.0 %

**References:**

1. Suda, H. et al. (1973) J. Antibiotics **26**, 621
2. Roques, B.P. & Beaumont, A. (1990) Trends Pharmacol. Sci. **2**, 245-9
3. Gettins, P. (1988) J. Biol. Chem. **263**, 10208-11
4. Ikegawa, R. et al. (1990) Biochem. Biophys. Res. Commun. **171**, 669-75
5. Rae, G.A. et al. (1993) Eur. J. Pharmacol. **240**, 113-9
6. Patel, K.V. & Schrey, M.P. (1995) Br. J. Cancer **71**, 442-7
7. Fawzi, A.B. et al. (1994) Anal. Biochem. **222**, 342-50
8. Umekawa, T. et al. (1994) J. Pharmacol. Exp. Ther. **269**, 860-6
9. Ohnaka, K. et al. (1993) J. Biol. Chem. **268**, 26759-66

Cat.No.	Size
32753.01	5 mg

**o-Phthalaldehyde** analytical grade

(o-Phthalaldehyde)  
 $C_8H_6O_2$  ♦  $M_r$  134.14 ♦ CAS [643-79-8]



DANGER  
 H301-H314-H317-H400 ♦ GGVSE/  
 ADR 8 II UN2923 ♦ IATA 8 II UN2923 ♦

EINECS 211-402-2 ♦ WGK 3 ♦ HS 29122900  
 Storage temperature +2 °C to +8 °C

Especially purified for fluorimetric histidine determination (1). Reagent for amines and alkaloids (2) as well for amino acids (3, 4) and peptides (5, 6).

Assay (GC) min. 99.0 %  
 MP 54 - 57 °C

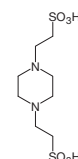
**References:**

1. Gerber, D.A. (1970) Anal. Biochem. **34**, 500-4
2. Wachsmuth, H. et al. (1960) Z. Anal. Chem. **176**, 77
3. Roth, M. & Hampai, A. (1973) J. Chromatogr. **83**, 353-56
4. Benson, J.R. & Hare, P.E. (1975) Proc. Natl. Acad. Sci. USA **72**, 619-22
5. Mendez, E. & Gavilanes, J.G. (1976) Anal. Biochem. **72**, 473-79
6. Svedas, V.K. et al. (1980) Anal. Biochem. **101**, 188-95

Cat.No.	Size
32800.01	5 g
32800.02	25 g
32800.03	100 g

**Piperazine-N,N'-bis(2-ethane sulfonic acid)** analytical grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)  
 $C_8H_{18}N_2O_6S_2$  ♦  $M_r$  302.4 ♦ CAS [5625-37-6]



HS 29335995

pKa 20 = 6.8.  
 Buffering substance for biochemistry and molecular biology. Important buffer component in Northern Blot hybridisation buffers.

Assay (titr.) min. 99.0 %  
 A 1 cm/2 % in NaOH  
 250 nm max. 0.2  
 Heavy metals (Pb) max. 0.0005 %

**References:**

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77

Cat.No.	Size
32981.01	50 g

**PIPES**

see 32981 Piperazine-N,N'-bis(2-ethane sulfonic acid), page 82

**PMSF**

see 32395 Phenylmethylsulfonyl fluoride, page 82

### ■ PNGase F, recombinant solution

$M_r$  36 000

HS 35079090

Storage temperature -15 °C to -25 °C

**Concentration:** 1000 u/μl (2.0 mg/ml), supplied in 1x PBS

PNGase F is a mutant recombinant glycosidase from *Flavobacterium meningosepticum* and expressed and purified from *E. coli*. The enzyme catalyzes the cleavage of N-linked oligosaccharides between the innermost GlcNAc and asparagine residues of high mannose, hybrid and complex oligosaccharides from N-linked glycoproteins.

The proprietary changes made to PNGase F have been shown to have unique characteristics when compared to other commercially-available sources of PNGase F:

- ◆ Does not need a denaturing step
- ◆ Works on native glycoproteins and serum glycoproteins in only minutes at room temperature
- ◆ Leads to a more complete glycan release compared to other commercially-available enzymes
- ◆ Especially designed and tested for mass spectrometry imaging of tissue samples

**Unit definition:** Achieves complete deglycosylation of 10 μg of RNase B incubated in 1x PBS with 1 μl of PNGase F for 5 - 10 min at 37 °C or room temperature.

Cat.No.	Size
36404.01	50 μl

### ■ PNGase F, recombinant lyophilized

$M_r$  36 000

HS 35079090

**Concentration after reconstitution:** 1000 u/μl (2.0 mg/ml) in 50 μl H<sub>2</sub>O dest.

PNGase F is a mutant recombinant glycosidase from *Flavobacterium meningosepticum* and expressed and purified from *E. coli*. The enzyme catalyzes the cleavage of N-linked oligosaccharides between the innermost GlcNAc and asparagine residues of high mannose, hybrid and complex oligosaccharides from N-linked glycoproteins.

The proprietary changes made to PNGase F have been shown to have unique characteristics when compared to other commercially-available sources of PNGase F:

- ◆ No need for refrigerated transport, storage at room temperature
- ◆ Does not need a denaturing step
- ◆ Works on native glycoproteins and serum glycoproteins in only minutes at room temperature
- ◆ Digestion leads to a more complete glycan release as compared to other commercially-available enzymes
- ◆ Especially designed and tested for mass spectrometry imaging of tissue samples

**Unit definition:** Achieves complete deglycosylation of 10 μg of RNase B incubated in 1x PBS with 1 μl of PNGase F for 5 - 10 min at 37 °C or room temperature.

Cat.No.	Size
36405.01	100 μg

### ■ Poly-L-lysine 70 000-HBr research grade

(C<sub>6</sub>H<sub>14</sub>N<sub>2</sub>O<sub>2</sub>·HBr)<sub>n</sub> ◆  $M_r$  ca. 70 000 - 150 000 ◆ CAS [25988-63-0]

WGK 1 ◆ HS 35040090

Storage temperature -15 °C to -25 °C

Poly-L-lysine is a positively charged amino acid polymer with approximately one HBr per lysine residue, which makes it soluble in water.

The substance is a nonspecific attachment factor for cells. It promotes cell adhesion to solid substrates by enhancing electrostatic interaction between negatively charged ions of the cell membrane and positively charged ions on the culture surface.

For coating of a 25 cm<sup>2</sup> culture dish it is recommended to use 1.0 ml of a 0.1 mg/ml solution. Remove the solution after 5 minutes through aspiration and thoroughly rinse the surface. Let dry for two hours before introducing cells and medium.

Can also be used for coating of glass coverslips.

Cat.No.	Size
33225.01	25 mg

### ■ Polyamide-6-powder research grade

(Polycaprolactam; Perlon; Nylon-6)

HS 39081000

For column chromatography.

Cat.No.	Size
33143.02	100 g

### ■ Polyclar® AT pract.

CAS [9003-39-8]

WGK 1 ◆ HS 39049000

Water-insoluble polyvinylpyrrolidone for binding phenols.

Heavy metals (Pb) max. 10 ppm

*Polyclar* = registered trademark of GAF Corp. USA.

#### References:

1. Loomis, W.D. & Bataille, J. (1966) *Phytochemistry* **5**, 423-38

Cat.No.	Size
33162.01	100 g
33162.02	500 g

### ■ Polyethylene glycol 4000 Ph. Eur., USP

(PEG 4000; Macrogol 4000; Macrogol)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ◆ WGK 1L ◆ HS 34042000

Degree of polymerization ca. 70 - 80.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average  $M_r$  3600 - 4400

Hydroxyl value 26.0 - 31.0

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size
33136.01	500 g
33136.02	5 kg

### ■ Polyethylene glycol 6000 Ph. Eur., USP

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ◆ WGK 1L ◆ HS 34042000

Degree of polymerization ca. 140 - 170.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average  $M_r$  5400 - 6600

Hydroxyl value 17.0 - 21.0

Cat.No.	Size
33137.01	500 g
33137.02	5 kg

### ■ Polyethylene glycol 6000 molecular biology grade

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ◆ WGK 1L ◆ HS 34042000

Degree of polymerization ca. 140 - 170.

DNase/RNase not detected. Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average  $M_r$  5400 - 6600

Cat.No.	Size
39778.01	500 g

**Polyethylene glycol 20 000** Ph. Eur., USP

(PEG 20000; Macrogol 20000)  
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

Degree of polymerization ca. 400 - 500.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average  $M_n$  16 000 - 25 000  
Hydroxyl value 4.5 - 7.0

Cat.No.	Size
33138.01	500 g
33138.02	5 kg

**Polyethylene glycol 40 000** Ph. Eur., USP

(PEG 35000; Macrogol 35000)  
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

Degree of polymerization ca. 800 - 900.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size
33139.01	500 g
33139.02	5 kg

**Polyethylenimine 50 % solution in water** pract.

(Polymine P)



WARNING  
H302-H317-H319-H411 ♦ GGVSE/ADR 9 III UN3082 ♦  
IATA 9 III UN3082 ♦ WGK 2 ♦ HS 39019090

Crosslinked polyethylenimine is used as enzyme carrier.

Non-volatile matter 48.0 - 52.0 %

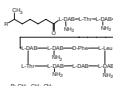
Cat.No.	Size
33141.03	100 ml
33141.04	500 ml

**Polymyxin-B-sulfate** research grade, Ph. Eur.

(Aerosporin)  
CAS [1405-20-5]



WARNING  
H302 ♦ HS 38210000  
Storage temperature +2 °C to +8 °C



Mixture of the sulfates of polypeptides produced by the growth of certain strains of *Bacillus polymyxa*, the main component being Polymyxin B1. Assay (HPLC): sum of Polymyxins B1, B2, B3 and B1-I min. 80 %; Polymyxin B3 max. 6 %; Polymyxin B1-I max. 15 % (all data based on dried substance).

Peptide antibiotic that mainly acts against gram negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Used in cell culture media against the contamination of bacteria or in other media for suppression of pathogenic germs (2,3). Inhibitor of the mitogenic response to lipopolysaccharide (4).

**References:**

- Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63
- Kwak, B. et al. (2000) Nature Medicine **6**, 1399-1402
- Alvarez-Dolado, M. et al. (2003) Nature **425**, 968-73
- Jacobs, D.M. & Morrison, D.C. (1977) J. Immunol. **118**, 21-7
- Asea, A. et al. (2000) Nature Medicine **6**, 435-42

Cat.No.	Size
47976.03	1 g

**Polyoxyethylene monolauryl ether**

see 15230 Brij 35™, page 20

**Polysorbate 20**

see 39796 Tween® 20, page 143

**Polysorbate 80**

see 37475 Tween® 80, page 144

**Polysorbate 80 VG** Ph. Eur., USP/NF

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate, n ca. 20)  
 $M_n$  ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

The fatty acids of this detergent are of vegetable origin.

HLB 15.0  
CMC  $1 \times 10^{-5}$  mol/l  
d25 °C 1.06 - 1.09  
Acid number max. 2.0 mg/KOH/g  
Hydroxyl number 65 - 80 mg/KOH/g  
Saponification number 45 - 55 mg/KOH/g  
Peroxide value max. 5 meq/kg  
Heavy metals (Pb) max. 10 ppm

Montanox = registered trademark of Seppic, France.

**References:**

- Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
- Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
- Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size
33116.01	500 g

**Polyvinylpyrrolidone 15** pract.

$M_n$  ca. 10000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Polyvinylpyrrolidone 15 is a water-soluble polymer used in tissue and biomedical engineering, pharmaceutical applications and cosmetics.

Intrinsic viscosity (K-value) ca. 15.0

Cat.No.	Size
33422.01	100 g
33422.02	1 kg

**Polyvinylpyrrolidone 30**

$M_n$  ca. 40 000 ♦ CAS [9003-39-8]

HS 39059990

Polyvinylpyrrolidone 30 is a water-soluble polymer used in tissue and biomedical engineering, pharmaceutical applications and cosmetics.

Intrinsic viscosity (K-value) 27.0 - 33.0

Cat.No.	Size
33421.01	100 g
33421.02	1 kg

**Polyvinylpyrrolidone 25** pract., Ph. Eur., USP

(Collidon; Plasdone)

$M_n$  ca. 29000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Polyvinylpyrrolidone 25 is a water-soluble polymer used in tissue and biomedical engineering, pharmaceutical applications and cosmetics.

Intrinsic viscosity (K-value) 22.5 - 27.0  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
33420.02	250 g
33420.03	1 kg

**Polyvinylpyrrolidone 90** pract.

$M_n$  ca. 1 100000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Polyvinylpyrrolidone 90 (PVP 90) is used as cryoprotectant, in hybridization buffers like Denhardt's, for RNA isolation from plants rich in polyphenols, in tissue and biomedical engineering.

Intrinsic viscosity (K-value) 81.0 - 97.0

Cat.No.	Size
33410.01	100 g
33410.02	1 kg

### Polyvinylsulfate-K-salt

$(C_2H_3O_4S)_n \cdot K_n$  ♦  $M_r (170.000)_n$ ,  $n \geq 1500$  ♦ CAS [26837-42-3]

WGK 1 ♦ HS 39059990

Polyvinylsulfate-K-salt is used, among other things, in polyelectrolyte titration for the determination of polycations. It can also be used in the potentiodynamic electropolymerisation of pyrrole.

Cat.No.	Size
33425.01	2,5 g
33425.02	10 g

### Polyvinylsulfate-K-salt pure

$(C_2H_3O_4S)_n \cdot K_n$  ♦  $M_r (162.21)_n$ ,  $n \geq 1500$  ♦ CAS [26837-42-3]

WGK 1 ♦ HS 39059990

Polyvinylsulfate-K-salt is used, among other things, in polyelectrolyte titration for the determination of polycations. It can also be used in the potentiodynamic electropolymerisation of pyrrole.

Cat.No.	Size
33426.02	2,5 g
33426.03	10 g

### Ponceau S

(Acid Red 112; Fast Ponceau 2B)

C.I.27195 ♦  $C_{22}H_{12}N_4O_{13}S_4 \cdot Na_4$  ♦  $M_r 760.61$  ♦  
CAS [6226-79-5]



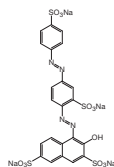
WARNING

H315-H319-H335 ♦ EINECS 228-319-2 ♦ WGK 2L

♦ HS 29270000

For reversible protein staining on membranes and for microscopy.

$\lambda$  max. 0.001 % in water 517- 523 nm  
Water (KF) max. 15.0 %  
A 1 cm/0.001 % in water/ $\lambda$  max. min. 0.355  
 $\epsilon$  max in water min. 27 000  
TLC corresponds



Cat.No.	Size
33429.01	5 g
33429.02	25 g

### Ponceau S solution for electrophoresis (0.2 %)



DANGER

H314-H412 ♦ GGVSE/ADR 9 III UN3082 ♦ IATA 9 III UN3082 ♦

WGK 2 ♦ HS 38220000

In 3 % TCA. For reversible protein staining on membranes.

Cat.No.	Size
33427.01	500 ml

### Potassium acetate molecular biology grade

$C_2H_3O_2K$  ♦  $M_r 98.14$  ♦ CAS [127-08-2]

EINECS 204-822-2 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected.

Assay (titr.) min 99.0 %  
Heavy metals (as Pb) max. 0.001 %  
pH 5 % in water 7.5 - 9.0

Cat.No.	Size
39567.02	500 g

### Potassium chloride research grade, Ph. Eur.

KCl ♦  $M_r 74.55$  ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

Assay (titr.) 99.0 - 100.5 %  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26868.02	1 kg

### Potassium chloride molecular biology grade

KCl ♦  $M_r 74.6$  ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

DNase/RNase not detected.

Assay (titr.) min. 99.0 %  
Heavy metals (as Pb) max. 10 ppm  
Fe max. 20 ppm

Cat.No.	Size
39768.01	500 g

### Potassium dihydrogen phosphate anhydrous

analytical grade, Ph. Eur.

(Potassium biphosphate; Potassium phosphate monobasic (prim. potassium phosphate))

$KH_2PO_4$  ♦  $M_r 136.1$  ♦ CAS [7778-77-0]

EINECS 231-913-4 ♦ WGK 1 ♦ HS 28352400

Biochemical and enzyme standard. Buffering substance according to Sørensen. 9.072 g in 1 liter water = 1/15 M. Tested for use in tissue culture.

Assay (titr.) 98.0 % - 100.5 %  
pH 5 % in water 4.2  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26870.01	500 g

### di-Potassium hydrogen phosphate anhydrous

analytical grade

(Dipotassium hydrogen phosphate; Potassium phosphate dibasic (sec. potassium phosphate))

$K_2HPO_4$  ♦  $M_r 174.18$  ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Buffering substance for biochemistry and enzymology.

Assay min. 99.0 %  
pH 5 % in water 8.7 - 9.3  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26887.01	500 g
26887.02	1 kg

### PreCast Gels for IEF

see 42965 SERVALYT™ PRECOTES™ Wide Range pH 3-10, page 123

### PRECOTES™

see 42965 SERVALYT™ PRECOTES™ Wide Range pH 3-10, page 123

### PreNets™

see 42738 SERVALYT™ PreNets™ pH 3-10, page 124

### L-Proline research grade, Ph. Eur.

(Pro; 2-Pyrrolidincarboxylic acid)

$C_5H_9NO_2$  ♦  $M_r 115.13$  ♦ CAS [147-85-3]

EINECS 205-702-2 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %



Cat.No.	Size
33582.02	50 g

**Pronase E from *Streptomyces griseus***

min. 5.0 DMC-U/mg lyophil.

(*Streptomyces griseus* neutral proteinase; Actinase E)  
CAS [9036-06-0]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦  
EINECS 232-909-5 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Mixture of at least 10 proteases: five serine type proteases, two zinc endopeptidases, two zinc leucine aminopeptidases and one zinc carboxypeptidase. Digestion with the product has been useful when extensive or complete degradation of protein is required. Pronase E is used in tissue dissociation of various tissues, e.g. to isolate living chondrocytes. Additional applications are the structural analysis of proteins (1, 2), preparation of bacteriophage lambda DNA (3), pretreatment of tissue sections to enhance the intensity of immunostaining and removal of protein in DNA/RNA isolations.

**Activity:** min. 5.0 DMC U/mg

**Unit definition:** 1 DMC-U (1U) is that amount of enzymatic activity which catalyzes the cleavage of 1 µ-equivalent peptide bond from dimethyl casein per minute at 25 °C, pH 7.5, expressed in terms of the appearance of new terminal amino groups (4).

**Activity in other units:** ca. 1 000 000 PU-units/g (casein substrate; 40 °C, pH 7.4 (5), ca. 20 000 PUK-units/g (casein substrate, 40 °C, pH 7.5).

*Pronase* = registered trademark of Calbiochem-Novabiochem Corp.

**References:**

- Jehanli, A. & Hough, D. (1985) *Mol. Immunol.* **22**, 557-66
- Tsugita, A. & Akabori, S. (1959) *J. Biochem. (Tokyo)* **46**, 695-704
- Maniatis, T. et al. (1982) *Molecular Cloning - a Laboratory Manual*. Cold Spring Harbor Laboratory, p. 85
- Lin, Y. et al. (1969) *J. Biol. Chem.* **244**, 789-93
- Nomoto, M. & Narashi, Y. (1959) *J. Biochem. (Tokyo)* **46**, 653-67

Cat.No.	Size
33635.01	250 mg
33635.02	1 g
33635.03	5 g

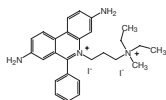
**2-Propanone**

see 45632 Aceton, page 2

**Propidium iodide research grade**

(3,8-Diamino-5-(3-[diethylmethylammonio]propyl)-6-phenylphenan-thridinium· diiodide)

C<sub>27</sub>H<sub>34</sub>N<sub>4</sub><sup>2+</sup>·2I<sup>-</sup> ♦ M<sub>r</sub> 668.4 ♦ CAS [25535-16-4]



WARNING  
H315-H319-H335-H341 ♦  
EINECS 247-081-0 ♦ WGK 2 ♦ HS 29239000

Storage temperature +2 °C to +8 °C

For selective labelling of DNA in dead cells; used in tumor diagnosis (flow cytometry) (1, 2). For the study of micronuclear morphology of protozoa (3).

**References:**

- Valet, G. et al. (1987) *Blut* **49**, 37-43
- ibid. (1984) *J. Clin. Chem. Clin. Biochem.* **22**, 935-42
- Fox, D.P. et al. (1987) *Stain Technol.* **62**, 217-20

Cat.No.	Size
33671.01	25 mg

**β-Propiolactone research grade**

(2-Oxetanone; 3-Hydroxypropionic acid lactone)  
C<sub>3</sub>H<sub>4</sub>O<sub>2</sub> ♦ M<sub>r</sub> 72.06 ♦ CAS [57-57-8]



DANGER  
H315-H319-H330-H350 ♦ Carc. 1B ♦ EG-Index 606-031-00-1 ♦ GGVSE/ADR 6.1 II UN2810 ♦  
IATA 6.1 II UN2810 ♦ EINECS 200-340-1 ♦ WGK 3 ♦ HS 29322090

Storage temperature -15 °C to -25 °C \*\*

Miscibility with water 37 %. Polymerizes on warming and in the presence of ions (1). For enzyme sterilization (2). Carcinogen (3).

Assay (H-NMR) min. 98.5 %

**References:**

- Gresham, T.L. et al. (1948) *J. Am. Chem. Soc.* **70**, 998-9
- Stokes, K.J. (1971) *J. Clin. Pathol.* **24**, 658-60
- Poirier, L.A. et al. (1979) *J. Natl. Cancer Inst.* **62**, 833-40

Cat.No.	Size
33672.01	10 ml

**Propylene oxide research grade**

(1,2-Epoxypropane)  
C<sub>3</sub>H<sub>6</sub>O ♦ M<sub>r</sub> 58.08 ♦ CAS [75-56-9]



DANGER  
H224-H302-H312-H315-H319-H332-H335-H340  
-H350 ♦ Muta. 1B, Carc. 1B ♦ MAK/TRK

6 mg/m<sup>3</sup>, 2.5 ml/m<sup>3</sup> ♦ EG-Index 603-055-00-4 ♦ GGVSE/ADR 3 I UN1280 ♦  
IATA 3 I UN1280 ♦ EINECS 200-879-2 ♦ WGK 3L ♦ HS 29102000

Solvent used in the last stage of dehydration of tissue for epoxy embedding in electron microscopy.

Content min. 99 %

Cat.No.	Size
33715.01	1 L

**Protease-Inhibitor Mix G**

WGK 2 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 5 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine-, serine- and metalloproteases. Recommended for general applications and where the use of organic solvents should be avoided. Contains AEBSF, Aprotinin, E-64, Leupeptin and EDTA. The content of 1 vial dissolved in 1 ml water results in a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size
39101.01	1 vial
39101.02	5 vials
39101.03	10 vials

**Protease-Inhibitor Mix B**

WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 5 protease inhibitors with broad range of activity against aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with bacterial extracts. Contains AEBSF, Bestatin, E-64, Pepstatin A and EDTA. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size
39105.01	1 vial
39105.02	5 vials
39105.03	10 vials

**Protease-Inhibitor Mix FY**



DANGER  
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦  
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 1 ♦

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 4 protease inhibitors with broad specificity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases. It is especially formulated for use with fungal and yeast extracts. Contains AEBSF, E-64, Pepstatin A, and 1,10-Phenanthroline.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size
39104.01	1 vial
39104.02	5 vials
39104.03	10 vials



### Protease-Inhibitor Mix P



DANGER  
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦  
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 2 ♦

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 6 protease inhibitors with broad range of activity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with plant extracts. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and 1,10-Phenanthroline.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size
39103.01	1 vial
39103.02	5 vials
39103.03	10 vials

### Protease-Inhibitor Mix M

EINECS 200-664-3 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine-proteases as well as aminopeptidases (metallo-proteases). It is especially formulated for use with extracts from mammalian tissue, but can also be used with other extracts. It is free of EDTA and contains AEBSF, Aprotinin, Bestatin, E-64, Leupeptin and Pepstatin A.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size
39102.01	1 vial
39102.02	5 vials
39102.03	10 vials

### Protease-Inhibitor Mix HP

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 4 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine- and serine-proteases. Free of metal-chelators. Recommended for purification of polyHis-tagged proteins and for other applications where metal-chelators should be avoided. Contains AEBSF, Aprotinin, E-64, and Leupeptin.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size
39106.01	1 vial
39106.02	5 vials
39106.03	10 vials

### Protease-Inhibitor Mix HP PLUS

HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine proteases as well as aminopeptidases, Thermolysin and other microbial metalloendoproteases. It is especially recommended for purification of polyHis-tagged proteins and for other applications, where metal-chelators should be avoided.

Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and Phosphoramidon.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size
39107.01	1 vial
39107.02	5 vials
39107.03	10 vials

### Proteasome Inhibitor MG-132

(Carbobenzoxy-L-leucyl-L-leucyl-leucinal; Z-Leu-Leu-Leu-H (aldehyde))  
C<sub>26</sub>H<sub>41</sub>N<sub>3</sub>O<sub>5</sub> ♦ M<sub>r</sub> 475.62 ♦ CAS [133407-82-7]

HS 29420000

Storage temperature -15 °C to -25 °C

Potent, reversible and cell-permeable proteasome inhibitor.

Assay (HPLC) min. 90.0 %

#### References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Jensen, T.J. et al. (1995) Cell **83**, 129
3. Lee, D.H. a. Goldberg, A.L. (1996) J. Biol. Chem. **271**, 27280

Cat.No.	Size
33766.02	5 mg

### Protein A Buffer Pack

HS 38220000

#### Contents:

- 1 x Binding Buffer pH 9.0 A (250 ml)
- 1 x Elution Buffer pH 5.5 B1 (125 ml)
- 1 x Elution Buffer pH 2.5 B2 (125 ml)
- 1 x Neutralization Buffer pH 9.0 C (30 ml)

Cat.No.	Size
42275.01	1 kit

### Protein A Midi Bulk Pack Midi A Plugs

HS 38220000

The Midi Protein A & G spin column permits semi-preparative purification of concentrated monoclonal and polyclonal antibodies for all downstream applications. Both the Mini and Midi kits contain all the resin spin columns, buffers and ultrafiltration spinners necessary for rapid and convenient purifications of your target antibodies.

#### Contents:

- Quantity: 12 x 1.6 ml Protein A Midi spin columns
- Max. sample volume per load: 20 ml, swing bucket rotor
- Collection tube: 24 x 20 ml centrifuge tubes
- Min. number of purifications: 60 purifications (5 uses per column)
- Typical capacity/preparation: 20 mg human IgG

Cat.No.	Size
42259.01	12 pieces

### Protein A Midi Kit - 4 Midi A Plugs

HS 38220000

The Midi Protein A & G spin column permits semi-preparative purification of concentrated monoclonal and polyclonal antibodies for all downstream applications. Both the Mini and Midi kits contain all the resin spin columns, buffers and ultrafiltration spinners necessary for rapid and convenient purifications of your target antibodies.

#### Contents:

- Quantity: 4 x 1.6 ml Protein A Midi spin columns
- Max. sample volume per load: 20 ml, swing bucket rotor
- Collection tube: 8 x 20 ml centrifuge tubes
- Min. number of purifications: 20 purifications (5 uses per column)
- Typical capacity/preparation: 20 mg human IgG
- Vivaspin 20 ultrafiltration concentrators: 4
- Buffers: 1 x Binding Buffer pH 9.0 A (250 ml), 1 x Elution Buffer pH 5.5 B1 (125 ml), 1 x Elution Buffer pH 2.5 B2 (125 ml), 1 x Neutralization Buffer pH 9.0 C (30 ml)

Cat.No.	Size
42258.01	1 kit

**Protein A Mini Bulk Pack Mini A Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 48 x 0.23 Protein A Mini spin columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microcentrifuge tubes  
 Min. number of purifications: 144 purifications (3 uses per column)  
 Typical capacity/preparation: 1 mg human IgG

Cat.No.	Size
42257.01	48 pieces

**Protein A Mini Kit - 16 Mini A Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 16 x 0.23 Protein A Mini spin columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microcentrifuge tubes  
 Min. number of purifications: 48 purifications (3 uses per column)  
 Typical capacity/preparation: 1 mg human IgG  
 Vivaspin 500 ultrafiltration concentrators: 16  
 Buffers: 1 x Binding Buffer pH 9.0 A, 1 x Elution Buffer pH 5.5 B1, 1 x Elution Buffer pH 2.5 B2, 1 x Neutralization Buffer pH 9.0 C

Cat.No.	Size
42256.01	1 kit

**Protein A Mini Sample Kit: 2 Mini A Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 2 x 0.23 Protein A Mini spin columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microcentrifuge tubes  
 Min. number of purifications: 6 purifications (3 uses per column)  
 Typical capacity/preparation: 1 mg human IgG  
 Vivaspin 500 ultrafiltration concentrators: 2  
 Buffers: 1 x Binding Buffer pH 9.0 A, 1 x Elution Buffer pH 5.5 B1, 1 x Elution Buffer pH 2.5 B2, 1 x Neutralization Buffer pH 9.0 C

Cat.No.	Size
42255.01	1 kit

**Protein A Mini Sample Pack: 1 Mini A Plug**

HS 38220000

Cat.No.	Size
42254.01	1 piece

**Protein G Buffer Pack**

HS 38220000

**Contents:**

1 x Binding Buffer pH 9.0 A (250 ml)  
 1 x Elution Buffer pH 2.5 B2 (125 ml)  
 1 x Neutralization Buffer pH 9.0 C (30 ml)

Cat.No.	Size
42276.01	1 kit

**Protein G Midi Bulk Pack Midi G Plugs**

HS 38220000

The Midi Protein A & G spin column permits semi-preparative purification of concentrated monoclonal and polyclonal antibodies for all downstream applications. Both the Mini and Midi kits contain all the resin spin columns, buffers and ultrafiltration spinners necessary for rapid and convenient purifications of your target antibodies.

**Contents:**

Quantity: 12 x 1.6 ml Protein G Midi spin columns  
 Max. sample volume per load: 20 ml, swing bucket rotor  
 Collection tube: 24 x 20 ml centrifuge tubes  
 Min. number of purifications: 60 purifications (5 uses per column)  
 Typical capacity/preparation: 20 mg human IgG

Cat.No.	Size
42265.01	12 pieces

**Protein G Midi Kit - 4 Midi G plugs**

HS 38220000

The Midi Protein A & G spin column permits semi-preparative purification of concentrated monoclonal and polyclonal antibodies for all downstream applications. Both the Mini and Midi kits contain all the resin spin columns, buffers and ultrafiltration spinners necessary for rapid and convenient purifications of your target antibodies.

**Contents:**

Quantity: 4 x 1.6 ml Protein G Midi spin columns  
 Max. sample volume per load: 20 ml, swing bucket rotor  
 Collection tube: 8 x 20 ml centrifuge tubes  
 Min. number of purifications: 20 purifications (5 uses per column)  
 Typical capacity/preparation: 20 mg human IgG  
 Vivaspin 20 ultrafiltration concentrators: 4  
 Buffers: 1 x Binding Buffer pH 9.0 A (250 ml), 1 x Elution Buffer pH 2.5 B2 (125 ml), 1 x Neutralization Buffer pH 9.0 C (30 ml)

Cat.No.	Size
42264.01	1 kit

**Protein G Mini Bulk Pack Mini G Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 48 x 0.23 Protein G Mini spin columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microcentrifuge tubes  
 Min. number of purifications: 144 purifications (3 uses per column)  
 Typical capacity/preparation: 1 mg human IgG

Cat.No.	Size
42263.01	48 pieces

**Protein G Mini Kit: 16 Mini G Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 16 x 0.23 Protein G Mini spin columns  
 Max. sample volume per load: 0.65 ml, fixed angle rotor  
 Collection tube: 2.2 ml microcentrifuge tubes  
 Min. number of purifications: 48 purifications (3 uses per column)  
 Typical capacity/preparation: 1 mg human IgG  
 Vivaspin 500 ultrafiltration concentrators: 16  
 Buffers: 1 x Binding Buffer pH 9.0 A, 1 x Elution Buffer pH 2.5 B2, 1 x Neutralization Buffer pH 9.0 C

Cat.No.	Size
42262.01	1 kit

**Protein G Mini Sample Kit: 2 Mini G Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

- Quantity: 2 x 0.23 Protein G Mini spin columns
- Max. sample volume per load: 0.65 ml, fixed angle rotor
- Collection tube: 2.2 ml microcentrifuge tubes
- Min. number of purifications: 6 purifications (3 uses per column)
- Typical capacity/preparation: 1 mg human IgG
- Vivaspin 500 ultrafiltration concentrators: 2
- Buffers: 1 x Binding Buffer pH 9.0 A, 1 x Elution Buffer pH 2.5 B2, 1 x Neutralization Buffer pH 9.0 C

Cat.No.	Size
42261.01	1 kit

**Protein G Mini Sample Pack Mini G Plug**

HS 38220000

Cat.No.	Size
42260.01	1 piece

**Protein Molecular Weight Standards**

HS 38220000

Storage temperature -15 °C to -25 °C

To determine the molecular weight of proteins separated in polyacrylamide gels in their native state SERVA offers a set of 8 proteins.

Proteins are either in solution or lyophilized, the lyophilized proteins can easily be dissolved in water or sample buffer. The molecular weights of the proteins range from 12.300 Da (Cytochrome C) up to 450.000 Da (Ferritin horse).

**Please note: In the presence of SDS most of the proteins will fall into their subunits, therefore this marker should not be used for SDS PAGE.**

25 mg of each. For native electrophoresis.

- Ferritin horse  $M_r$  450 000
- Catalase bovine  $M_r$  240 000
- Aldolase rabbit  $M_r$  160 000
- Albumin bovine (BSA)  $M_r$  67 000
- Albumin egg  $M_r$  45 000
- Chymotrypsinogen A  $M_r$  25 000
- Myoglobin equine  $M_r$  17 800
- Cytochrome C  $M_r$  12 300

Cat.No.	Size
39064.01	1 kit

**Protein Standards (Markers) for IEF**

see 39212 IEF Marker 3-10, Liquid Mix, page 62

**Protein Test Mixture 4 for SDS PAGE**



DANGER  
H334 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis. The bovine albumin (BSA) contains monomers and oligomers.

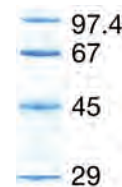
Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

- Phosphorylase B  $M_r$  97 400
- Albumin bovine (BSA)  $M_r$  67 000
- Albumin egg  $M_r$  45 000
- Carbonic anhydrase  $M_r$  29 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
39208.01	10 mg



**Protein Test Mixture 5 for SDS PAGE**



DANGER  
H302-H334-H341-H361D ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis.

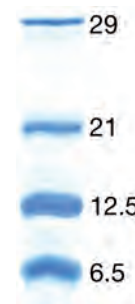
Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

- Carbonic anhydrase  $M_r$  29 000
- Trypsin inhibitor (soybean)  $M_r$  21 000
- Cytochrome C  $M_r$  12 300
- Trypsin inhibitor (bovine lung)  $M_r$  6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
39209.01	10 mg



**Protein Test Mixture 6 for SDS PAGE**



DANGER  
H334 ♦ WGK 1 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis. Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.



Phosphorylase B	M <sub>r</sub> 97 400
Albumin bovine (BSA)	M <sub>r</sub> 67 000
Albumin egg	M <sub>r</sub> 45 000
Carbonic anhydrase	M <sub>r</sub> 29 000
Trypsin inhibitor (soybean)	M <sub>r</sub> 21 000
Cytochrome C	M <sub>r</sub> 12 300
Trypsin inhibitor (bovine lung)	M <sub>r</sub> 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
39207.01	10 mg

**Protein Test Mixture for pI-Determination, pH 3-10**



DANGER  
H334-H341 ♦ WGK 1 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

Lyophilized pI marker proteins for pI determination by isoelectric focusing (IEF). Reconstitute dry powder with 1 ml water (concentration: 10 mg/ml).

Amyloglucosidase	pI 3.5
Glucose oxidase	pI 4.2
Trypsin inhibitor	pI 4.5
β-Lactoglobulin	pI 5.15/5.3
Myoglobin horse	pI 6.9/7.35
Lentil lectin	pI 7.75/8.0/8.3
Ribonuclease A	pI 9.45
Cytochrome C	pI 10.65
Carboanhydrase	pI 6.0

Cat.No.	Size
39211.01	10 mg

**Proteinase K from *Tritirachium album***

solution 20 mg solid/ml, ≥ 600 mAnson-U/ml

EC 3.4.21.14 ♦ M<sub>r</sub> M<sub>i</sub> 28.000



DANGER  
H334 ♦ WGK 1 ♦ HS 38220000  
Storage temperature -15 °C to -25 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

**Unit definition:** 1 mAnson unit is defined as the amount of enzyme that liberates folin-positive amino acids and peptides, corresponding to 1 µmol tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4).

**Activity (U/ml):** ≥ 600

**Inhibitors for proteinase:** AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and diisopropylfluorophosphate.

**Extraneous activities:** DNases and RNases not detectable.

**References:**

- Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
- Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
- Anson, M.L. (1938) J. Gen. Physiol. **22**, 79-98

Cat.No.	Size
33755.01	1 ml
33755.02	5 ml
33755.03	10 ml

**Proteinase K from *Tritirachium album***

min. 30 mAnson-U/mg lyophil.

EC 3.4.21.14 ♦ M<sub>r</sub> ca. 28 000 ♦ CAS [39450-01-6]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦  
EINECS 254-457-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

**Unit definition:** 1 mAnson unit is defined as the amount of enzyme that liberates folin-positive amino acids and peptides, corresponding to 1 µmol tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4).

**Activity (U/ml):** ≥ 600

**Inhibitors for proteinase:** AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395)

**Extraneous activities:** DNases and RNases not detectable.

**References:**

- Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
- Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
- Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size
33752.01	25 mg
33752.02	100 mg
33752.03	500 mg

**Proteinase K, recombinant, min. 30 mAnson-U/mg**

lyophil., molecular biology grade

EC 3.4.21.14 ♦ M<sub>r</sub> ca. 28 000 ♦ CAS [39450-01-6]



DANGER  
H315-H319-H334-H335 ♦ EINECS 254-457-8 ♦ WGK 1 ♦  
HS 35079090

Storage temperature -15 °C to -25 °C

A recombinant proteinase K from *Tritirachium album* expressed in *Pichia pastoris*. Subtilisin-related serine protease with a very high specific activity and a broad spectrum of action. It is widely used for digestion of proteins, including DNases and RNases during nucleic acid preparations without compromising the integrity of the isolated DNA or RNA. Free of DNase and RNase activity.

**Unit definition:** One unit will hydrolyze urea-denatured 2 % hemoglobin to produce color equivalent 1 µmol of tyrosine per minute at pH 7.5 at 37 °C (color by Folin & Ciocalteu's Phenol Reagent).

Cat.No.	Size
33756.02	100 mg
33756.03	500 mg

**Proteinase K, recombinant, min. 35 mAnson-U/mg**

lyophil., NGS grade

EC 3.4.21.14 ♦ M<sub>r</sub> 28.900,00 ♦ CAS [39450-01-6]



DANGER  
H315-H319-H334-H335 ♦ EINECS 254-457-8 ♦ WGK 1 ♦  
HS 35079090

Storage temperature -15 °C to -25 °C

A recombinant proteinase K from *Tritirachium album* expressed in *Pichia pastoris*.

Subtilisin-related serine protease with a very high specific activity and a broad spectrum of action. It is widely used for digestion of proteins, including DNases and RNases during nucleic acid preparations without compromising the integrity of the isolated DNA or RNA.

An extra purification step results in 2.5-fold increased solubility, increased specific activity and very low DNA content compared to other commercially available recombinant proteinase K preparations. Therefore it is especially suitable for methods demanding highest quality like Next Generation Sequencing (NGS).

- ♦ Free of endonucleases, exonucleases and ribonucleases
- ♦ Solubility in water: ≥ 50 mg/ml
- ♦ DNA: ≤0.1 pg/mg enzyme

Cat.No.	Size
33757.01	25 mg
33757.02	100 mg

### ■ Proteus 1-Step Batch Midi Plus Spin Columns

HS 38220000

Proteus 1-Step Batch Midi Plus Spin Columns are designed for small scale protein purifications such as those required for expression trials, solubility determination tests, screening, titrating and scouting studies.

These innovative columns incorporate a SelfSeal™ membrane technology which retains the resin and sample in the batch incubation chamber. When the column is spun in a benchtop centrifuge at 750 g, the pores of the membrane dilate and the filtered eluate is collected in the bottom of the centrifuge tube.

#### Specifications

Sinter type: ultra high density polyethylene  
 Construction: Polypropylene  
 Pore size: 0.1 - 0.2 µm low protein binding PVDF  
 SelfSeal: Proprietary coating  
 Maximum vol: 20 ml  
 Typical g force: 750 g  
 Typical spin times: 5 min for up to 20 ml sample at 750 g  
 Storage: Store at RT (non-sterile)  
 Shelf-life: 24 months

Cat.No.	Size
42239.01	8 pieces

### ■ Proteus 1-Step Batch Mini Spin Columns

HS 38220000

Proteus 1-Step Batch Mini Spin Columns are designed for small scale protein purifications such as those required for expression trials, solubility determination tests, screening, titrating and scouting studies.

These innovative columns incorporate a SelfSeal™ membrane technology which retains the resin and sample in the batch incubation chamber. When the column is spun in a microfuge at 12 - 14,000 g for up to 1 min, the pores of the membrane dilate and the filtered eluate is collected in the bottom of the centrifuge tube.

#### Specifications

Sinter type: ultra high density polyethylene  
 Construction: Polypropylene  
 Pore size: 0.1 - 0.2 µm low protein binding PVDF  
 SelfSeal: Proprietary coating  
 Maximum vol: 600 µl  
 Maximum g force: 12 - 14,000 g (45° fixed angle rotor)  
 Minimum g force: 2,500 g for 1 min  
 Typical spin times: 30 sec - 1 min for up to 0.6 ml sample at 12 - 14,000 g  
 Storage: Store at RT (non-sterile)  
 Shelf-life: 24 months

Cat.No.	Size
42237.01	40 pieces

### ■ Proteus 1-Step Batch Mini Spin Columns

HS 38220000

Proteus 1-Step Batch Mini Spin Columns are designed for small scale protein purifications such as those required for expression trials, solubility determination tests, screening, titrating and scouting studies.

These innovative columns incorporate a SelfSeal™ membrane technology which retains the resin and sample in the batch incubation chamber. When the column is spun in a microfuge at 12 - 14,000 g for up to 1 min, the pores of the membrane dilate and the filtered eluate is collected in the bottom of the centrifuge tube.

#### Specifications

Sinter type: ultra high density polyethylene  
 Construction: Polypropylene  
 Pore size: 0.1 - 0.2 µm low protein binding PVDF  
 SelfSeal: Proprietary coating  
 Maximum vol: 600 µl  
 Maximum g force: 12 - 14,000 g (45° fixed angle rotor)  
 Minimum g force: 2,500 g for 1 min  
 Typical spin times: 30 sec - 1 min for up to 0.6 ml sample at 12 - 14,000 g  
 Storage: Store at RT (non-sterile)  
 Shelf-life: 24 months

Cat.No.	Size
42238.01	100 pieces

### ■ Proteus Detergent Anion Exchange Mini Spin Column Kit (20 pc)

HS 38220000

Proteus Detergent Anion Exchange (DetEx) Mini Spin Columns designed for rapid and effective removal of free detergents micelles and complete detergent exchange. They are optimized for membrane proteins with pI <8 in complex with non-ionic or zwitterionic detergents. Simple and adaptable to your protein requiring only a microfuge for operation. Ideal for applications such as ELISA, IEF, MS and NMR which suffer from interference with excess detergents.

#### Features:

Weak Anion Exchanger for binding membrane proteins with pI <8  
 Complete detergent exchange/removal  
 Column bed volume: 0.2 ml  
 Max. sample loading volume: 0.4 ml  
 Typical protein binding capacity: 2 mg  
 Elution in a small volume (minimum volume 50 µl)

#### Benefits:

Universal appeal as most proteins have a pI between 4 - 8  
 Rapid removal and exchange of free detergent micelles in 10 min  
 Generate concentrated protein free of detergent micelles  
 Only requires a microfuge for use

Cat.No.	Size
42241.01	1 kit

### ■ Proteus Detergent Anion Exchange Mini Spin Columns Trial Kit (4 pc)

HS 38220000

Proteus Detergent Anion Exchange (DetEx) Mini Spin Columns designed for rapid and effective removal of free detergents micelles and complete detergent exchange. They are optimized for membrane proteins with pI <8 in complex with non-ionic or zwitterionic detergents. Simple and adaptable to your protein requiring only a microfuge for operation.

Ideal for applications such as ELISA, IEF, MS and NMR which suffer from interference with excess detergents.

#### Features:

Weak Anion Exchanger for binding membrane proteins with pI <8  
 Complete detergent exchange/removal  
 Column bed volume: 0.2 ml  
 Max. sample loading volume: 0.4 ml  
 Typical protein binding capacity: 2 mg  
 Elution in a small volume (minimum volume 50 µl)

#### Benefits:

Universal appeal as most proteins have a pI between 4 - 8  
 Rapid removal and exchange of free detergent micelles in 10 min  
 Generate concentrated protein free of detergent micelles  
 Only requires a microfuge for use

Cat.No.	Size
42240.01	1 kit

### ■ Proteus Mini Clarification Spin Column, 0.2 µm PVDF membrane

HS 38220000

Proteus Mini Clarification Spin Columns are designed to remove microorganisms, particles and precipitates larger than 0.2 µm pore size from aqueous solutions. These are ideal for HPLC/FPLC sample preparation. The PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. The membrane binds far less protein than nylon, cellulose or PES membranes. The columns fit all standard microfuges and allow you to process multiple samples in parallel.

#### Specifications

Membrane type: Hydrophilic PVDF  
 Plastic construction: Polypropylene  
 Pore size: 0.2 µm  
 Maximum sample volume: 0.65 ml  
 Hold-up volume: < 5 µl  
 Maximum g force: 16,000 g  
 Typical spin times: 1 - 2 mins for 0.65 ml sample at 14,000 g  
 Storage: Store at RT (non-sterile)  
 Shelf-life: 24 months

Cat.No.	Size
42225.01	100 pieces



**■ Proteus NoEndoμ (Micro) 100 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42250.01	1 kit

**■ Proteus NoEndoμ (Micro) 2 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42242.01	1 kit

**■ Proteus NoEndoμ (Micro) 24 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42246.01	1 kit

**■ Proteus NoEndoHC (High Capacity) 12 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42249.01	1 kit

**■ Proteus NoEndoHC (High Capacity) 2 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42245.01	1 kit

**■ Proteus NoEndoHC (High Capacity) 48 Column Kit**

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42253.01	1 kit

### ■ Proteus NoEndoM (Mini) 12 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42247.01	1 kit

### ■ Proteus NoEndoM (Mini) 2 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42243.01	1 kit

### ■ Proteus NoEndoM (Mini) 48 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

NoEndo™ μ spin columns incorporate our proprietary and NASA-inspired SelfSeal™ membrane technology. The membrane is specially formulated to prevent any sample from leaking into the collection tube on an orbital mixer. In a centrifuge, the membrane pores dilate and the eluate, free of endotoxin, passes into the collection tube. The contact time is maximized to ensure maximum endotoxin depletion without losses of the target protein, antibody or domain antibody. Uniquely, there is also no dilution of the sample.

Cat.No.	Size
42251.01	1 kit

### ■ Proteus NoEndoS (Standard) 12 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42248.01	1 kit

### ■ Proteus NoEndoS (Standard) 2 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42244.01	1 kit

### ■ Proteus NoEndoS (Standard) 48 Column Kit

HS 38220000

Residual endotoxin contamination in advanced biotechnology products is an expensive and often difficult contaminant to control. Many commercially available protocols are unable to remove endotoxins effectively and are based on non-affinity chromatography methods e.g. ion exchange chromatography, phase separation using Triton X-114 or require time consuming and expensive affinity steps. These costly resins are often supplied as loose resin or packed in slow gravity columns. The Proteus NoEndo™ spin column kits offer a standardised method for high grade clearance of endotoxin from recombinant proteins, antibodies and viral vectors. These agents are increasingly being designed for therapeutic applications, hence moving them forward efficiently through *in vivo* studies requires pure preparations of the samples.

The proprietary FlowGo™ technology regulates sample movement through the technologically-advanced affinity resin cartridge, increasing both endotoxin removal and protein recovery. Uniquely, we offer flow rate control for endotoxin removal in a centrifuge.

Cat.No.	Size
42252.01	1 kit

**Proteus X-Spinner 2.5 TRIAL Columns, assorted MWCOs**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Trial pack contains the following X-Spinner with MWCOs of: 2x 5 kDa, 3x 10 kDa, 2x 20 kDa, 3x 100 kDa, 2x 300 kDa.

Cat.No.	Size
42226.01	12 pieces

**Proteus X-Spinner 2.5, 5 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 24 X-Spinner with MWCO of 5 kDa.

Cat.No.	Size
42227.01	24 pieces

**Proteus X-Spinner 2.5, 5 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 96 X-Spinner with MWCO of 5 kDa.

Cat.No.	Size
42228.01	96 pieces

**Proteus X-Spinner 2.5, 10 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 24 X-Spinner with MWCO of 10 kDa.

Cat.No.	Size
42229.01	24 pieces

**Proteus X-Spinner 2.5, 10 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 96 X-Spinner with MWCO of 10 kDa.

Cat.No.	Size
42230.01	96 pieces

**Proteus X-Spinner 2.5, 20 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 24 X-Spinner with MWCO of 20 kDa.

Cat.No.	Size
42231.01	24 pieces

**Proteus X-Spinner 2.5, 20 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 96 X-Spinner with MWCO of 20 kDa.

Cat.No.	Size
42232.01	96 pieces

**Proteus X-Spinner 2.5, 100 kDa MWCO**

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 24 X-Spinner with MWCO of 100 kDa.

Cat.No.	Size
42233.01	24 pieces

### ■ Proteus X-Spinner 2.5, 100 kDa MWCO

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 96 X-Spinner with MWCO of 100 kDa.

Cat.No.	Size
42234.01	96 pieces

### ■ Proteus X-Spinner 2.5, 300 kDa MWCO

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 24 X-Spinner with MWCO of 300 kDa.

Cat.No.	Size
42235.01	24 pieces

### ■ Proteus X-Spinner 2.5, 300 kDa MWCO

HS 38220000

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target proteins during concentration or buffer exchange step. The 2.5 ml non-stick UF concentrator provides the highest possible protein recoveries. This is due to two factors: the low protein binding cellulose triacetate (CTA) membrane and critically, the design of the X-Spinner which ensures that ultrafiltration is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Maximum sample volume is 2.5 ml, hold-up volume is 25 µl. Pack contains 96 X-Spinner with MWCO of 300 kDa.

Cat.No.	Size
42236.01	96 pieces

### □ Pteroylmonoglutamic acid

see 21700 Folic acid, page 46

### ■ Puromycin-2HCl research grade

C<sub>22</sub>H<sub>29</sub>N<sub>7</sub>O<sub>5</sub>·2HCl ♦ M<sub>r</sub> 544.4 ♦ CAS [58-58-2]

WARNING  
H302-H341 ♦ EINECS 200-387-8 ♦  
WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

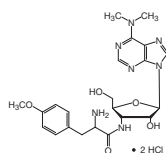
From *Streptomyces albo-niger*. Free base (M<sub>r</sub> 471.5) 86 %. Inhibitor of protein biosynthesis. Causes premature termination of the nascent polypeptide chain by its action as aminoacyl-tRNA analog (in procaryotes and eucaryotes).

Purity (HPLC, TLC) min. 98.0 %

## References:

- Vazquez, D. (1974) FEBS Lett. **40**, 63-84
- Clayssens, S. et al. (1993) FEBS Lett. **315**, 7

Cat.No.	Size
33835.01	10 mg
33835.02	50 mg
33835.03	250 mg



### ■ PVDF 0.2 Transfer Membrane

Pore size 0.2 µm, format: 30 cm x 3 m

HS 39219090

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Transfer membrane based on PVDF-type chemistry with high protein binding capacity, low background and excellent mechanical stability. Applicable for all standard and special applications in the field of protein analysis.

Cat.No.	Size
42515.01	1 roll

### ■ PVDF 0.45 Transfer Membrane Pore size 0.45 µm, format: 30 cm x 3 m

HS 39219090

Transfer membrane based on PVDF-type chemistry with high protein binding capacity, low background and excellent mechanical stability. Applicable for all standard and special applications in the field of protein analysis.

Cat.No.	Size
42514.01	1 roll

### □ 3-[2-Pyridyl]-5,6-diphenyl-1,2,4-triazine-4,4'-disulfonic acid Na-salt

see 21326 Ferrozine®, page 44

### □ 2-Pyrrolidinecarboxylic acid

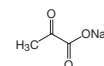
see 33582 L-Proline, page 85

### ■ Pyruvic acid-Na-salt research grade, for cell culture

(Sodium pyruvate)

C<sub>3</sub>H<sub>3</sub>O<sub>3</sub>·Na ♦ M<sub>r</sub> 110.04 ♦ CAS [113-24-6]

EINECS 204-024-4 ♦ WGK 1 ♦ HS 29183000



In cell culture sodium pyruvate is used by cells as a carbohydrate source and it is involved with amino acid metabolism and initiates the Krebs cycle. E.g. it has been used as a component of M-199 medium for the maturation of oocytes and in cutting solution for rat brain tissue slice preparation.

Assay (titr.) min. 99.0 %  
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
15220.01	25 g
15220.03	100 g

### ■ Quick Coomassie™ Stain

HS 38220000

Storage temperature +2 °C to +8 °C

There are several benefits of our QC stain compared to other rapid and traditional Coomassie™ stains:

**Rapid:** 15 min non-toxic safe 1-step stain. No organic solvents and no phosphoric acid!

**Sensitive:** 50 x more sensitive than other rapid stains. Lower limit is 5 ng protein standard.

**Linear range:** Very low background enabling accurate quantitation of proteins.

**High resolution:** Sharp protein bands that you would expect with traditional Coomassie™ staining. Also MS compatible!

**Durable:** Re-usable up to 3 times!

**Shelf life:** 1 year at room temperature. No precipitate forms over time, thus no shaking required!

Coomassie is a trademark of ICI Ltd.

Cat.No.	Size
35081.01	1 L

### ■ α-D-Raffinose research grade

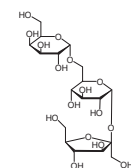
(α-D-Galactopyranosyl-(1 → 6)-α-D-glucopyranosyl-(1 → 2)-β-D-fructofuranoside)

C<sub>18</sub>H<sub>32</sub>O<sub>16</sub>·5H<sub>2</sub>O ♦ M<sub>r</sub> 594.56 ♦ CAS [17629-30-0]

EINECS 208-146-9 ♦ WGK 1 ♦ HS 29400000

For bacteriology.

Purity (HPLC) min. 98.0 %  
MP 78 - 82 °C  
[α]<sub>D</sub> 20 °C/D (c=10 % in water) +103.0° to +108.0 °



Cat.No.	Size
34140.03	500 g

**ReadyLyzer 0.25, MWCO 6 - 8 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 – 250 µl
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44620.01	10 pieces
44620.02	30 pieces

**ReadyLyzer 0.25, MWCO 12 - 14 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 – 250 µl
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44621.01	10 pieces
44621.02	30 pieces

**ReadyLyzer 0.8, MWCO 1 kDa**

HS 39173200

Storage temperature +2 °C to +8 °C

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 50 – 800 µl
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44622.01	5 pieces

**ReadyLyzer 0.8, MWCO 3.5 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 50 – 800 µl
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44623.01	10 pieces
44623.02	30 pieces

**ReadyLyzer 0.8, MWCO 6 - 8 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 50 – 800 µl
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44624.01	10 pieces
44624.02	30 pieces

**ReadyLyzer 3, MWCO 3.5 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 0.1 – 3 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44625.01	5 pieces
44625.02	15 pieces

**ReadyLyzer 3, MWCO 6 - 8 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 0.1 – 3 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44626.01	5 pieces
44626.02	15 pieces

**ReadyLyzer 3, MWCO 12 - 14 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 0.1 – 3 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44627.01	5 pieces
44627.02	15 pieces

**ReadyLyzer 10, MWCO 1 kDa**

HS 39173200

Storage temperature +2 °C to +8 °C

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44628.01	5 pieces

**ReadyLyzer 10, MWCO 3.5 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44630.01	10 pieces



**ReadyLyzer 10, MWCO 6 - 8 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44632.01	10 pieces

**ReadyLyzer 10, MWCO 12 - 14 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 10 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44634.01	10 pieces

**ReadyLyzer 20, MWCO 1 kDa**

HS 39173200

Storage temperature +2 °C to +8 °C

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 20 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44629.01	5 pieces

**ReadyLyzer 20, MWCO 3.5 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 20 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44631.01	10 pieces

**ReadyLyzer 20, MWCO 6 - 8 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 20 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44633.01	10 pieces

**ReadyLyzer 20, MWCO 12 - 14 kDa**

HS 39173200

Ready-to-use dialysis system for quick and efficient dialysis and buffer exchange. The tube has the dialysis membrane pre-installed and is easily opened and closed with a screw cap. No struggling with closures and leaking knots or risking puncturing the membrane. Delivered with a flotation ring for improved buoyancy and vertical orientation.

- ◆ Volume size: 20 ml
- ◆ High recovery 98 %
- ◆ Ultrapure regenerated cellulose membrane

Cat.No.	Size
44635.01	10 pieces

**Recombinant Protein A Sepharose FF Resin**

HS 38220000

Protein A Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors.

Recombinant protein A has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 30 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

Specificity: Protein A affinity antibodies

Matrix: Sepharose®

Coupled ligand: 3.5 mg Protein A/ml resin

Binding capacity (human IgG): 30 mg/ml

Bead size: 60 - 165 µm

Flow rate: 0.25 - 1 ml/min (recommended)

Maximum pressure: 120 - 140 psi

Buffer compatibility: Common aqueous buffers from pH 2.5 - 10

Binding buffer example: 1.5 M glycine/NaOH, 3 M NaCl pH 9.0

Elution buffer example (1): 0.1 M sodium citrate pH 5.5

Elution buffer example (2): 0.2 M glycine/HCl pH 2.5

Neutralization buffer example: 1 M Tris/HCl pH 9.0

Shipping/delivery: 50 % (v/v) resin suspension in 0.01 % thimerosal

Storage: 0.01 % thimerosal at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42309.01	1 ml

**Recombinant Protein A Sepharose FF Resin**

HS 38220000

Protein A Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors.

Recombinant protein A has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 30 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western Blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

Specificity: Protein A affinity antibodies

Matrix: Sepharose®

Coupled ligand: 3.5 mg Protein A/ml resin

Binding capacity (human IgG): 30 mg/ml

Bead size: 60 - 165 µm

Flow rate: 0.25 - 1 ml/min (recommended)

Maximum pressure: 120 - 140 psi

Buffer compatibility: Common aqueous buffers from pH 2.5 - 10

Binding buffer example: 1.5 M glycine/NaOH, 3 M NaCl pH 9.0

Elution buffer example (1): 0.1 M sodium citrate pH 5.5

Elution buffer example (2): 0.2 M glycine/HCl pH 2.5

Neutralization buffer example: 1 M Tris/HCl pH 9.0

Shipping/delivery: 50 % (v/v) resin suspension in 0.01 % thimerosal

Storage: 0.01 % thimerosal at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42310.01	5 ml

**Recombinant Protein A Sepharose FF Resin**

HS 38220000

Protein A Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors. Recombinant protein A has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 30 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western Blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

Specificity: Protein A affinity antibodies  
 Matrix: Sepharose®  
 Coupled ligand: 3.5 mg Protein A/ml resin  
 Binding capacity (human IgG): 30 mg/ml  
 Bead size: 60 - 165 µm  
 Flow rate: 0.25 - 1 ml/min (recommended)  
 Maximum pressure: 120 - 140 psi  
 Buffer compatibility: Common aqueous buffers from pH 2.5 - 10  
 Binding buffer example: 1.5 M glycine/NaOH, 3 M NaCl pH 9.0  
 Elution buffer example (1): 0.1 M sodium citrate pH 5.5  
 Elution buffer example (2): 0.2 M glycine/HCl pH 2.5  
 Neutralization buffer example: 1 M Tris/HCl pH 9.0  
 Shipping/delivery: 50 % (v/v) resin suspension in 0.01 % thimerosal  
 Storage: 0.01 % thimerosal at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42311.01	25 ml

**Recombinant Protein G Sepharose FF Resin**

HS 38220000

Protein G Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors. Recombinant protein G has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 20 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western Blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

Specificity: Protein G affinity antibodies  
 Matrix: Sepharose®  
 Coupled ligand: 2 mg Protein G/ml resin  
 Binding capacity (human IgG): 20 mg/ml  
 Bead size: 45 - 165 µm  
 Flow rate: 0.25 - 1 ml/min (recommended)  
 Maximum pressure: 120 - 140 psi  
 Buffer compatibility: Common aqueous buffers from pH 2.5 - 10  
 Binding buffer example: 0.1 M sodium phosphate, 0.15 M NaCl, pH 7.4  
 Elution buffer example: 0.2 M glycine/HCl pH 2.5  
 Neutralization buffer example: 1 M Tris/HCl pH 9.0  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol  
 Storage: 20 % ethanol at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42312.01	1 ml

**Recombinant Protein G Sepharose FF Resin**

HS 38220000

Protein G Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors. Recombinant protein G has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 20 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western Blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

Specificity: Protein G affinity antibodies  
 Matrix: Sepharose®  
 Coupled ligand: 2 mg Protein G/ml resin  
 Binding capacity (human IgG): 20 mg/ml  
 Bead size: 45 - 165 µm  
 Flow rate: 0.25 - 1 ml/min (recommended)  
 Maximum pressure: 120 - 140 psi  
 Buffer compatibility: Common aqueous buffers from pH 2.5 - 10  
 Binding buffer example: 0.1 M sodium phosphate, 0.15 M NaCl, pH 7.4  
 Elution buffer example: 0.2 M glycine/HCl pH 2.5  
 Neutralization buffer example: 1 M Tris/HCl pH 9.0  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol  
 Storage: 20 % ethanol at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42313.01	5 ml

**Recombinant Protein G Sepharose FF Resin**

HS 38220000

Protein G Sepharose® FF Resin designed for simple, one-step and rapid antibody purification from serum, ascites and tissue culture supernatant such as those derived from static cultures and bioreactors. Recombinant protein G has been coupled to Sepharose® to obtain a stable matrix with a high binding capacity for immunoglobulins via the heavy chain of the FC region (up to 20 mg/ml Human IgG). Antibody samples purified using this affinity resin may be used in a wide range of laboratory procedures such as 1D or 2D polyacrylamide gel electrophoresis, Western Blotting, ELISA etc. Binding affinity varies depending upon the source species and subclass.

**Specifications**

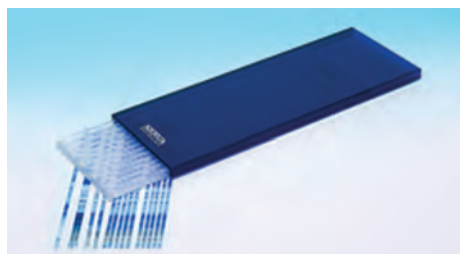
Specificity: Protein G affinity antibodies  
 Matrix: Sepharose®  
 Coupled ligand: 2 mg Protein G/ml resin  
 Binding capacity (human IgG): 20 mg/ml  
 Bead size: 45 - 165 µm  
 Flow rate: 0.25 - 1 ml/min (recommended)  
 Maximum pressure: 120 - 140 psi  
 Buffer compatibility: Common aqueous buffers from pH 2.5 - 10  
 Binding buffer example: 0.1 M sodium phosphate, 0.15 M NaCl, pH 7.4  
 Elution buffer example: 0.2 M glycine/HCl pH 2.5  
 Neutralization buffer example: 1 M Tris/HCl pH 9.0  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol  
 Storage: 20 % ethanol at 2 - 8 °C for up to 2 years from manufacture

Cat.No.	Size
42314.01	25 ml

### Rehydration Tray for IPG Strips

HS 90272000

To rehydrate up to 12 IPG strips in lengths up to 24 cm. The rehydration tray is form stable and resistant against chemicals normally used when rehydrating IPG strips. The binding capacity to proteins is very low. The lid protects the IPG strips during rehydration against contamination. After usage the tray can easily be cleaned using a mild washing-up liquid and rinsed with distilled water.



Cat.No.	Size
43091.01	1 piece

### Renlam® M-1

(ARALDITE® CY 212)



WARNING

H315-H317-H319-H411 ♦ GGVSE/ADR 9 III UN3082 ♦ IATA 9 III UN3082 ♦ WGK 2 ♦ HS 29109000

Solvent-free, modified bisphenol A epoxy resin. Epoxy equivalent weight 232 - 250. Yields 3-dimensional crosslinking blocks.

Non-toxic substitute for ARALDITE® CY 212, which contained dibutyl phthalate. Renlam® M-1 has identical properties as ARALDITE® CY 212 and can therefore be used in all electron microscopy protocols in exactly the same way as ARALDITE® CY 212.

Viscosity 1400 - 1800 mPa·s/25 °C  
Epoxy number 4.10 - 4.35 eq./kg

Renlam+ ARALDITE = trademarks of Huntsman Advanced Materials Europe

Cat.No.	Size
13825.02	1 kg

### Replacement Bulb 8 W, 254 NM

HS 90278017

Cat.No.	Size
UV-8-254.01	1 pieces
UV-8-254.02	8 pieces

### Replacement Bulb 8 W, 312 NM

HS 90278017

Cat.No.	Size
UV-8-312	1 piece

### Replacement Electrode for BM-100 (one pair)

HS 90279050

Cat.No.	Size
BM-100-RE	1 piece

### Replacement Electrode for BM-200 (one pair)

HS 90279050

Cat.No.	Size
BM-200-RE	1 piece

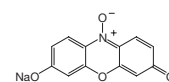
### Resazurin-Na-salt analytical grade

(Diazoresorcinol)

C<sub>12</sub>H<sub>6</sub>NO<sub>2</sub>·Na ♦ M<sub>r</sub> 251.2 ♦ CAS [62758-13-8]

WARNING

H302-H315-H319-H335 ♦ EINECS 263-718-5  
♦ HS 29349990



Resazurin is a blue non-fluorescent dye used as a redox indicator in cell viability and proliferation assays for bacteria, yeast or mammalian cells. In viable cells the blue form of the dye is irreversibly reduced by enzymes to the highly red-fluorescent product resorufin (excitation: 530 - 540 nm; emission: 585 - 595 nm), which can be detected by flow cytometry, fluorescence microscopy, and high-throughput screening methods. Resazurin is minimally toxic to living cells, making it suitable for use in long-term cell culture.

Cat.No.	Size
34226.02	5 g

### Resazurin Cell Viability Assay

HS 38220000

Storage temperature -15 °C to -25 °C

The Resazurin Cell Viability Assay is a fluorescent assay that detects the cellular metabolic activities. The kit offers a simple, rapid, reliable, sensitive, safe, and cost-effective measurement of cell viability. Resazurin is a blue non-fluorescent dye until it is irreversibly reduced to the pink colored, highly red fluorescent resorufin by dehydrogenase enzymes in metabolically active cells. The fluorescent signal is monitored using 530 - 560 nm excitation wavelength and 590 nm emission wavelength. The absorbance is monitored at 570 nm and 600 nm. The fluorescent or colorimetric signal generated is proportional to the number of living cells in the sample.

Cat.No.	Size
39905.01	4x 2,500 react.

### Ribonuclease A from bovine pancreas

min. 80 Kunitz units/mg lyophil.

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligonucleotidohydrolase)

EC 3.1.27.5 ♦ M<sub>r</sub> ca. 13 700 ♦ CAS [9001-99-4]

DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

An endonuclease which specifically attacks pyrimidine sites (Py/pN) at the 3'-phosphate group. This preparation is salt-free, protease-free and chromatographically homogeneous.

**RNase A content:** min. 90 % by ion exchange chromatography. DNase not detected.

**Unit definition:** 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0

#### References:

1. Kunitz, M. (1946) J. Biol. Chem. **164**, 563-8
2. Krupp, G. & Gross, H.J. (1979) Nucl. Acids Res. **6**, 3481-90
3. Levy, C.C. & Kaepetzky, T.P. (1980) J. Biol. Chem. **255**, 2153-9
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.81)
5. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (3.13.1, 5.5.2, 4.7.3, 7.3.8)

Cat.No.	Size
34388.01	50 mg
34388.02	250 mg

**Ribonuclease A from bovine pancreas**

min. 70 Kunitz units/mg lyophil.

EC 3.1.27.5 ♦ M<sub>r</sub> ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

RNase A content approx. 70 %.

**DNase-free RNase:** To prepare RNase A free of DNase dissolve RNase A in TE buffer at 1 mg/ml and boil 10 to 30 minutes. Store aliquots at -20 °C to prevent microbial growth.

**Unit definition:** 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0.

Cat.No.	Size
34390.02	100 mg
34390.03	1 g

**Rifampicin research grade**

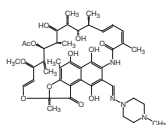
(Rifampin „Lepetit“; Rifamycin-AMP)

C<sub>43</sub>H<sub>58</sub>N<sub>4</sub>O<sub>12</sub> ♦ M<sub>r</sub> 822.96 ♦ CAS [13292-46-1]



WARNING

H302-H332 ♦ EINECS 236-312-0 ♦ WGK 1 ♦  
HS 29419000



Storage temperature +2 °C to +8 °C

Semisynthetic derivative of rifamycin SV which is produced from certain strains of *Amycolatopsis mediterranei*. Belongs to the group of ansamycin antibiotics. Inhibitor of DNA-dependent RNA-polymerase. Specifically inhibits the initiation step of RNA synthesis.

Assay 98.0 - 102.0 %

**References:**

1. Meilhac, M. et al. (1972) Eur. J. Biochem. **28**, 291-300
2. Ohta, S. et al. (1990) Plant Cell Physiol. **31**, 805-13
3. Dreher, J. et al. (1991), Molecular Microbiology, **5** (12), 3025-3034
4. Vilchez, S. et al. (2000) J. Bacteriol. **182**, 91-9
5. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7
6. Freiberg, C. et al. (2004) Current Opinion in Microbiology **7**, 451-9

Cat.No.	Size
34514.01	1 g
34514.02	5 g

**RIPA Buffer**

HS 38220000

Storage temperature +2 °C to +8 °C

RIPA buffer is a very effective buffer for lysis of cultured mammalian cells. It enables protein extraction from cytoplasmic, membrane and nuclear proteins. The buffer is compatible with many applications like protein purification, protein assays, Western blotting, reporter assays etc. However, it will disrupt protein-protein interactions and may therefore disturb applications like immunoprecipitation and pull-down assays.

Cat.No.	Size
39244.01	100 ml
39244.02	500 ml

**Roller for Electrophoresis**

HS 90330000

Cat.No.	Size
42991.01	1 piece

**Salt Active Nuclease**

HS 35079090

Storage temperature -15 °C to -25 °C \*\*

Supplied as solution in 25 mM Tris-HCl pH 7.5, 5 mM MgCl<sub>2</sub>, 0.5 M NaCl, 0.01 % Triton®X-100, 50 % (v/v) glycerol.

Salt Active Nuclease is a highly active non-specific endonuclease from a marine bacterium that cleaves both DNA and RNA. It digests DNA versus RNA in a 10:1 ratio.

Salt Active Nuclease has optimum activity at 0.5 M NaCl, is active in the pH range of 7 to 10 and low temperatures, which makes the enzyme ideal for use in removal of nucleic acids from cell extracts and protein samples. It will remove contaminating nucleic acids in a traditional protein buffer system. That guarantees the full protection of proteins while the nucleic acids are fully removed.

- ♦ Non-specific endonuclease
- ♦ Optimum activity at high salt concentration (0.5 M NaCl)
- ♦ Active at low temperatures (20 % at 6 °C)
- ♦ Broad pH range
- ♦ Easily inactivated by reducing agents

pH optimum

pH 9

Salt optimum

0.5 M NaCl

**Unit definition:** One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute at 37 °C, using 50 µg/ml calf thymus DNA in a buffer consisting of 25 mM Tris-HCl, pH 8.5 (25 °C), 5 mM MgCl<sub>2</sub>, 500 mM NaCl.

Cat.No.	Size
18541.01	5.000 U

**Sample Application Pieces 10 x 5 mm**

HS 48232000

For application of samples on the surface of IEF gels. The sample application pieces are placed on the gel surface at the optimal pH location.

Cat.No.	Size
42880.01	200 pieces

**Sample Buffer for Blue Native (2x)**

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Blue Native PAGE. Supplied as 2x concentrate.

Contains 1 M 6-aminocaproic acid, 100 mM BisTris-HCl (pH 7.0), 100 mM NaCl, 20 % glycerol, 0.1 % SERVA Blue G.

Cat.No.	Size
42533.01	20 ml

**Sample Buffer for Clear Native (2x)**

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Clear Native PAGE. Supplied as 2x concentrate.

Contains 100 mM NaCl, 100 mM imidazole, 4 mM 6-aminocaproic acid, 2 mM EDTA, 0.02 % Ponceau S, 20 % glycerol.

Cat.No.	Size
42534.01	20 ml

**Saponin pure, DAB**

CAS [8047-15-2]



WARNING

H315-H319-H335 ♦ EINECS 232-462-6 ♦ WGK 2L ♦ HS 29389090

Isolated from *Quillaja bark*. For permeabilization of cells.

**References:**

1. Lupetina, E.G. et al. (1984) Proc. Natl. Acad. Sci. USA **81**, 7431

Cat.No.	Size
34655.01	50 g
34655.02	250 g

**Sarkosyl NL-30**

see 27570 N-Lauroylsarcosine-Na-salt, page 66

### ■ Schneider's Drosophila Powder Medium Revised

HS 38210000

Storage temperature +2 °C to +8 °C

**Without** sodium bicarbonate, **without** calcium chloride.**Supplements:**

Penicillin G-K-salt (cat. no. 31749) 50 U/ml  
 Streptomycin sulfate 0.1 mg/ml  
 (cat. no. 35500)

**References:**1. Schneider, I. (1964) J. Exp. Zool. **156**, 91-104 and 166

Cat.No.	Size
47521.04	10 L

### □ SDS

see 20760 Dodecylsulfate-Na-salt, page 37

### ■ SDS Gel Kit 10 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Kit for horizontal SDS polyacrylamide gel electrophoresis.

Contains 4 film-backed 10 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. For the run on horizontal flatbed systems like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43359.01	1 kit

### ■ SDS Gel Kit 10 % 52S Size: 250 x 125 x 0.45 mm

HS 38220000

Kit for horizontal SDS polyacrylamide gel electrophoresis.

Contains 4 film-backed 10 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 52 slots for 6 µl) and a SDS PAGE buffer kit. For the run on horizontal flatbed systems like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43360.01	1 kit

### ■ SDS Gel Kit 15 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Kit for horizontal SDS polyacrylamide gel electrophoresis.

Contains 4 film-backed 15 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. For the run on horizontal flatbed systems like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43361.01	1 kit

### ■ SDS Gel Kit 15 % 52S Size: 250 x 125 x 0.45 mm

HS 38220000

Kit for horizontal SDS polyacrylamide gel electrophoresis.

Contains 4 film-backed 15 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 52 slots for 6 µl) and a SDS PAGE buffer kit. For the run on horizontal flatbed systems like HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43362.01	1 kit

### ■ SDS Gel Kit NF 12.5 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. Contains 4 film-backed 12.5 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 25 slots for 15 µl) and a SDS PAGE buffer kit. On non-fluorescent film support for HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43363.01	1 kit

### ■ SDS Gel Kit NF 15 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. Contains 4 film-backed 15 % T precast SDS PAGE gels (size 250 x 125 x 0.45 mm, 25 slots for 6 µl) and a SDS PAGE buffer kit. On non-fluorescent film support for HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43364.01	1 kit

### □ SDS pellets

see 20765 Dodecylsulfate-Na-salt in Pellets, page 37

### ■ SDS Solution, 20 %



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

For use in biochemical, electrophoretical and molecular biology applications.

**Composition:**

SDS: 200 g/L

Cat.No.	Size
20767.01	100 ml
20767.02	500 ml
20767.03	1 L

### ■ SDS Solution, 20 % molecular biology grade



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

DNase/RNase not detected. For molecular biology applications.

**Composition:**

SDS: 200 g/L

Cat.No.	Size
39575.01	100 ml
39575.02	1 L

### ■ SDS Solution, 20 % electrophoresis grade



WARNING

H315-H319-H335 ♦ HS 38220000

Ultrapure SDS solution, suitable for standard and high resolution electrophoresis techniques.

**Composition:**

SDS: 200 g/L

Cat.No.	Size
20768.02	500 ml
20768.03	1 L

### ■ SDS Urine Gel Kit 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use kit for analysis of urine proteins by SDS polyacrylamide gel electrophoresis: 25 slots for 15 µl, 4 gels + buffer kit suitable for urine protein analysis; for HPE™ BlueTower, HPE™ BlueHorizon and Multiphor II™.

Cat.No.	Size
43391.01	1 kit

### ■ Semi-Dry Blotting Buffer Kit for Western Blotting



DANGER

H370 ♦ WGK 1 ♦ HS 38220000

For Western Blotting in the „Semi-Dry“ System. Ready-to-use kit, consisting of 3 components:

**Buffer I** (conc. anode buffer): 0.3 M Tris and 20 % methanol in aqueous solution.**Buffer II** (diluted anode buffer): 0.03 M Tris and 20 % methanol in aqueous solution.**Buffer III** (cathode buffer): 0.025 M Tris/HCl (pH 9.4),

0.04 M 6-aminocaproic acid and 20 % methanol in aqueous solution.

Cat.No.	Size
42559.01	3 x 500 ml



**SERDOLIT® Chelite® P analytical grade**

HS 39140000

Off-white beads with a macroporous resin structure and a general affinity for polyvalent metal cations which may be employed for special techniques (e.g. <sup>90</sup>Sr<sup>++</sup> determination).

Styrene-DVB matrix with aminomethylphosphonic acid groups. Sodium form. The total capacity, expressed in g Cu/I is 45. Maximum working temperature: 65 °C. Complete desorption can be effected by 5 volumes of 2 N HCl.

Capacity min. 1.1 eq/l  
 Particle size 20 - 50 mesh (0.3 - 0.8 mm)  
 Loss on drying 60 - 70 %

Cat.No.	Size
41706.01	250 g
41706.02	1 kg

**SERDOLIT® MB analytical grade**

HS 39140000

Mixed-bed ion exchanger with exhaustion indicator composed of SERDOLIT® Blue (OH<sup>-</sup>-form) and SERDOLIT® CS-2 (H<sup>+</sup>-form) in a ratio at approx. 1.5:1 (v/v); ready-to-use, suitable for demineralizing water.

Capacity min. 0.8 eq/l  
 Particle size 16 - 50 mesh (0.3 - 1.2 mm)  
 Loss on drying 50 - 65 %

Cat.No.	Size
45500.03	500 g

**SERDOLIT® MB-1 analytical grade**

HS 39140000

Mixed-bed ion exchanger composed of a strongly acidic cation exchanger and a strongly basic anion exchanger (type I) in a ratio of 1:1.5 (v/v).

Capacity min. 1.0 eq/l  
 Particle size 16 - 50 mesh (0.3 - 1.2 mm)  
 Loss on drying 55 - 65 %

Cat.No.	Size
40701.03	500 g
40701.02	1 kg

**SERDOLIT® PAD I, 0.1 - 0.2 mm analytical grade**

(Ion Exchange Media)  
 HS 39140000

Apolar polystyrene/DVB matrix, macroporous.

Particle Size 0.1 - 0.2 mm  
 Spec. surface min. 250 m<sup>2</sup>/g  
 Pore Size ca. 25 nm  
 Loss on Drying 40 - 50 %

Cat.No.	Size
42443.01	100 g

**SERDOLIT® PAD I, 0.3 - 1.0 mm analytical grade**

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Recommended as alternative product to replace AMBERLITE® XAD-2.

Particle size 0.3 - 1.0 mm  
 Spec. surface min. 250 m<sup>2</sup>/g  
 Pore size ca. 25 nm  
 Loss on drying 40 - 50 %

Cat.No.	Size
42442.01	100 g

**SERDOLIT® PAD III, 0.1 - 0.2 mm analytical grade**

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Extremely large specific surface resulting in high adsorption capacity and kinetics.

Particle size 0.1 - 0.2 mm  
 Spec. surface min. 800 m<sup>2</sup>/g  
 Pore size ca. 25 nm  
 Loss on drying 45.0 - 55.0 %

Cat.No.	Size
42449.01	100 g

**SERVA Blue G**

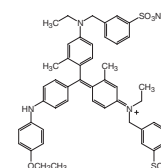
(Acid Blue 90; COOMASSIE® Brilliant Blue G-250; Xylene Brilliant Cyanine G)  
 C.I.42655 ♦ C<sub>47</sub>H<sub>48</sub>N<sub>3</sub>O<sub>7</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 854.0 ♦  
 CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

For preparation of staining solution for protein detection in gel electrophoresis.

λ max. (0.001 % pH 7) 580 - 590 nm  
 A 1 cm/λ max./1 % pH 7 min. 450

COOMASSIE= TM of ICI Ltd.



Cat.No.	Size
35050.02	25 g
35050.03	100 g

**SERVA Blue G Solution for Blue Native, 1%**

HS 38220000

Solution for preparing the blue stained cathode running buffer for Blue Native gel electrophoresis.

SERVA Blue G (cat. no. 35050): 10 g/l in aqua dest.

Cat.No.	Size
42538.01	20 ml

**SERVA Blue R**

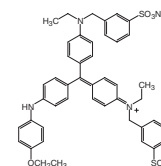
(Acid Blue 83; COOMASSIE® Brilliant Blue R-250)  
 C.I.42660 ♦ C<sub>45</sub>H<sub>44</sub>N<sub>3</sub>O<sub>7</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 826.0 ♦  
 CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

For preparation of staining solution for protein detection in gel electrophoresis. R stands for „reddish“.

λ max. (0.0002 % pH 7) 558 - 562 nm  
 A 1 cm/λ max./0.0002 % pH 7 min. 0.06  
 ελmax pH 7 min. 25 000

COOMASSIE= TM of ICI Ltd.



Cat.No.	Size
35051.02	25 g
35051.03	100 g

**SERVA Blue R Staining Kit**



DANGER  
 H225-H314 ♦ WGK 1 ♦ HS 38220000

Contains 500 ml 0.2 % SERVA Blue R in ethanol and 500 ml 20 % acetic acid.

Cat.No.	Size
42531.01	1 kit

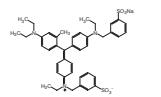
**SERVA Blue W soluble in water**

(Acid Blue 15)  
 C.I.42645 ♦ C<sub>42</sub>H<sub>46</sub>N<sub>3</sub>O<sub>6</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 776.0 ♦  
 CAS [5863-46-7]

EINECS 227-511-3 ♦ WGK 2L ♦ HS 32041200

A triphenylmethane dye, more lipophilic methyl homologue of SERVA Violet R. Suitable for round gels of PAGE, also for flat gels 0.1 - 1.0 mm thick.

λ max. (0.001 % pH 7) 566 - 564 nm  
 A 1 cm/λmax./0.001 % pH 7 min. 0.5



Cat.No.	Size
35053.02	25 g
35053.03	100 g

### ■ SERVA BlueCube 300

HS 90275000

The SERVA BlueCube 300 is a small and compact documentation system for capturing SERVA DNA Stain Clear G and EtBr stained nuclei acids separated in agarose and acrylamide gels.

The BlueCube is a compact instrument of 30 cm (W) x 26 cm (D) x 23,5 (H) cm and a weight of 10.4 kg, only.

It is equipped with a CMOS sensor, a two-filter system, a UV filter (∅ 25 mm) and a UV table drawer (312 nm, filter size is 180 x 140 mm).

A magnetic protection shield for safe handling of the gel (e.g. when cutting out gel bands) is included as well.

An external computer (only included with „L“-version) is connected via USB. A gel capture and 1D analysis software comes with the system for fast and easy going analysis of the captured gel, including automatic band detection, determination of molecular weights and quantification of bands.



Cat.No.	Size
BC-300	1 piece

### ■ SERVA BlueCube 300L

HS 90275000

The SERVA BlueCube 300L is a small and compact documentation system for capturing SERVA DNA Stain Clear G and EtBr stained nuclei acids separated in agarose and acrylamide gels.

The BlueCube is a compact instrument of 30 cm (W) x 26 cm (D) x 23,5 cm (H) and a weight of 10.4 kg, only. It is equipped with a CMOS sensor, a two-filter system, a UV filter (∅ 25 mm) and a UV table drawer (312 nm, filter size is 180 x 140 mm).

A magnetic protection shield for safe handling of the gel (e.g. when cutting out gel bands) is included as well. An external computer (included with „L“-version) is connected via USB. A gel capture and 1D analysis software comes with the system for fast and easy going analysis of the captured gel, including automatic band detection, determination of molecular weights and quantification of bands.

Cat.No.	Size
BC-300L	1 piece

### ■ SERVA BlueForceps

HS 90272000

Specially shaped forceps for easy handling of gels and membranes.

Cat.No.	Size
SBF-01	1 piece

### ■ SERVA Bluemager

HS 90275000

The SERVA Bluemager is a compact gel documentation system with user-friendly features of easy operation and quick response when in WiFi environment under standalone condition. This imaging system consists of a scientific CCD camera, motor driven lens, RGB light illuminator. The five-fold filter changer is equipped with a 595 nm filter.

Fluorescent stains such as SERVA Lightning Red, SERVA Lightning Sci3 and Cy3 are detectable with the standard emission filter.

In addition and by the use of additional filters (additional filters like 535 nm and 665 nm are available) SERVA Lightning Sci2, SERVA Lightning Sci5, Cy2, Cy5, Alexa 488, Alexa 546, Alexa 647, SYPRO Ruby, SYBR Green I/II, SYBR Safe, DNA Stain G, etc. excited by blue, red, and green lights can easily be observed and captured by Bluemager.

Followed the design concept of a single, independent workstation with a single all-in-one processor embedded inside, Bluemager does not require any extra desktop computer to operate the system on. The 8" built-in touch screen LCD panel that Bluemager possesses can directly handle the image data without difficulty. Moreover, the Bluemager's smart user interface and vivid icons can rapidly capture gel images with high accuracy. With the use of Bluemager, you will enjoy a worry-free experience in collecting the gel imaging data while conducting some advanced chemi-fluorescence staining related experiments in your research.

Followed the design concept of a single, independent workstation with a single all-in-one processor embedded inside, Bluemager does not require any extra desktop computer to operate the system on. The 8" built-in touch screen LCD panel that Bluemager possesses can directly handle the image data without difficulty. Moreover, the Bluemager's smart user interface and vivid icons can rapidly capture gel images with high accuracy. With the use of Bluemager, you will enjoy a worry-free experience in collecting the gel imaging data while conducting some advanced chemi-fluorescence staining related experiments in your research.



#### Features:

- ◆ Wide applications for colorimetric and fluorescence detection
- ◆ Patent-registered light source design: effectively excite the dye on gel sample
- ◆ High sensitivity: detection limit may reach to 1 ng
- ◆ Highly efficient filter lens suitable for the emission wavelength excited from each light source
- ◆ Ready for DIGE, multiplex analysis
- ◆ Low energy consumption: Energy saving
- ◆ Cost efficient: affordable imager system that may process some advanced research experiments

#### Applications:

The three light sources equipped in Bluemager are red, green, and blue LED lights. Thus, wide range of color fluorescence applications may be processed through light source excitations:

- ◆ Red light applications: SERVA Lightning Sci5, Alexa™ 647, Alexa™ 660, allophycocyanin, Cy5, TO-PRO™-3, etc....
- ◆ Green light applications: SERVA Lightning Sci3, Alexa™ 546, Alexa™ 555, Alexa™ 568, Cy3, Nile red, Rhodamine B, TRITC, etc....
- ◆ Blue light applications: : SERVA Lightning Sci2, Alexa™ 488, Cy2, SYBR Safe, SYBR Green, SYBR Gold, SYPRO Ruby, FITC, ethidium bromide, etc.

Cat.No.	Size
BI-RGB	1 piece

**SERVA Blue-White Light Table**

HS 90275000

The Blue/White Light Table is a dual light source transilluminator for bottom-up LED illumination. It is adjustable to 3 individual light intensities, the amber filter is hinge-free, magnetic positioned. A gel cutting knife as well as a cardboard hood for image capturing with a smartphone are included.

- ◆ Filter size 180 mm x 120 mm
- ◆ 5 minutes automatic power-off
- ◆ Stable metal housing
- ◆ Enhanced portability with PowerBank (optional)
- ◆ Dimensions and weight: 185 mm x 30 mm x 220 mm, 1.45 kg



Cat.No.	Size
BWL-T	1 piece

**SERVA BlueShake**

HS 84798200

SERVA BlueShake is a next generation rocking table. A solid aluminum housing, top quality electronic components and mechanics that meet the highest demands make BlueShake a laboratory device that is also ideally equipped for continuous use in research and diagnostic laboratories. The device is characterized by a sturdy, durable construction: Built on an aluminum housing, it is equipped with robust, precisely running motors. The movement of the table can be controlled manually in all directions at a freely adjustable speed. For a gentle staining or immunoblotting process, the angle of inclination is 4°. The generously dimensioned touch screen is absolutely waterproof and, like the entire device, easy to clean. The built-in mechanism is maintenance-free.

The large touch screen allows easy and intuitive operation of the device. If necessary, adjust time, rocking direction and speed, start, done.

- ◆ 4° angle of inclination for gentle movement
- ◆ Large table surface for versatile use
- ◆ Timer function
- ◆ Direction of movement freely selectable (forward/ reverse - lateral - circular)
- ◆ Robust design - Made in Germany



Cat.No.	Size
BSH-01	1 piece

**SERVA BlueStain**

HS 84798200

SERVA BlueStain automatically stains polyacrylamide gels. Accurate, reproducible, user-friendly. The system pumps the required liquids into the gel tray. Pumping out after the preset incubation time is fast and complete. Thanks to SERVA BlueStain you can stain gel around gel using the same protocol. This makes the device interesting for research, but especially for the diagnostic laboratory.

The SERVA BlueStain staining machine as an universal gel stainer is used in research and diagnostics where a high number of gels have to be stained and/or a reproducible method is essential. The device is suitable for the whole range of currently applied staining methods. The simple operation, the absolutely robust mechanics and the results achieved with the device make it an indispensable tool in your laboratory. Programs are pre-installed on delivery, e.g. silver staining.

To start the staining process, first connect the appropriate storage containers (e.g. water, fixing solution, dye solution, waste, etc.) to the respective tubes. Now you can start after selecting the staining program. Using a simple export function, you can save the actual steps performed at the end of the staining process and thus document the corresponding log.

Due to flexible programming you can create your own logs or modify existing or pre-installed programs at any time. To do this, copy any program, make the desired changes and save the newly created program under its own name. You can also intervene in a program that is already running, i.e. cancel a step and go to the next step. This can be important, for example, in silver staining, in order to avoid overcoloring of the gel (silver mirror).

The device is characterized by a sturdy, long lasting construction: Built on an aluminum housing, equipped with robust, precisely running motors, sophisticated electronics and high-quality 10-valve pump technology. The device is equipped with a staining tray measuring 30 cm x 25 cm for large-format gels. Optional equipment for staining gels with smaller formats is available. The movement of the table can be controlled manually in all directions at a freely adjustable speed. For a gentle staining process, the angle of inclination of the table is 4°. The generously dimensioned touch screen is absolutely waterproof and, like the entire device, easy to clean. The built-in mechanism is maintenance-free. Replacement tubes are available as accessories.

- ◆ Suitable for all staining protocols
- ◆ Pre-installed standard programs
- ◆ Free modification/entry of further programs
- ◆ 4° angle of inclination for gentle movement
- ◆ Large gel tray (30 cm x 25 cm)
- ◆ Optionally adaptable for mini gels and other formats



Cat.No.	Size
BST-01	1 piece

**SERVA BlueStain Pharma Edition**

HS 90278080

The SERVA BlueStain Pharma Edition includes the SERVA BlueStain, a specially configured printer and an upgraded preinstalled firmware. This combination is FDA CFR part11 ready:

- ◆ Password protected - password assignment exclusively by superuser
- ◆ Changes in program flow only by logged-in user
- ◆ Data transfer of executed programs to USB stick only by superuser
- ◆ IQ/OQ/PQ and maintenance contract on request

Cat.No.	Size
BST-PU	1 kit

### ■ SERVA BlueStain Printer

HS 90278080

Cat.No.	Size
BSP-01	1 piece

### ■ SERVA BlueStain Pump Tube Replacement

HS 90272000

SERVA BlueStain Pump Tube Replacement includes pump tube, connection tubing to tray/valve, connectors and zip ties.

Cat.No.	Size
BST-R02	1 kit

### ■ SERVA BlueStain Replacement Tray with Lid

HS 90272000

Cat.No.	Size
BST-RT	1 piece

### ■ SERVA BlueStain Spare Part Kit

HS 90272000

SERVA BlueStain spare part kit includes all spare parts needed for maintenance, like tubes, number clips, valve/pump tubing, connectors and zip ties.

Cat.No.	Size
BST-R01	1 kit

### ■ SERVA Cellophane Sheets II

HS 39207100

Format: 140 x 133 mm. For drying of mini vertical slab gels (up to 10 x 10 cm).

Cat.No.	Size
42524.01	200 sheets

### ■ SERVA Clear G Agarose Tablets

HS 38220000

SERVA Clear G Agarose Tablets are fast-solving tablets which already contain the optimal amount of the non-carcinogenic sensitive fluorescent dye DNA Stain Clear G.

Just add the running buffer of your choice, solve the agarose and your agarose gel is ready!

- ◆ For analytical and preparative DNA and RNA gel electrophoresis and blotting (100 bp - ≥30 kb)
- ◆ Fast-solving agarose for gels with high clarity and low background
- ◆ Optimized mixture for high resolution of sharp bands with high sensitivity
- ◆ No clumping because separately packed in blister pack

Cat.No.	Size
39811.01	100 Tablets

### ■ SERVA Co-IDA HD Agarose Resin

HS 38220000

High density cobalt-iminodiacetic acid (IDA) crosslinked agarose resin for low pressure affinity chromatography. The high amount of available cobalt chelate groups allows for high binding capacity. Cobalt chelates recognize two exposed vicinal histidine tags with excellent specificity, but lower affinity as nickel or zinc chelates. The Co-IDA agarose resin is therefore the optimal choice, if highly pure proteins are needed or difficult to separate proteins have to be purified. Suitable for batch or column purifications. Binding/loading capacity: 20 - 40  $\mu\text{mol Me}^{2+}/\text{ml gel}$ .

Cat.No.	Size
42143.01	25 ml
42143.02	100 ml

### ■ SERVA CSF Silver Staining Kit



DANGER  
H225-H314-H331-H334-H411 ◆  
HS 38220000

High sensitive silver staining kit for staining of up to 5 film-backed, ultra-thin horizontal IEF gels for CSF analysis.

Cat.No.	Size
43398.01	1 kit

### ■ SERVA DNA Stain G



WARNING  
H315-H319 ◆ HS 38220000

SERVA DNA Stain G is a safer alternative to traditional ethidium bromide stain for detecting nucleic acids in agarose gels. It is at least as sensitive as ethidium bromide and can be used in exactly the same way in agarose gel electrophoresis. SERVA DNA Stain G can be added to the gel solution, working dilution is 1:20,000 to 1:50,000. SERVA DNA Stain G emits green fluorescence when bound to DNA or RNA. It has one fluorescence excitation maximum at ca. 300 nm and another at ca. 450 nm when bound to nucleic acid. SERVA DNA Stain G is non-carcinogenic and according to the AMES test it causes significantly fewer mutations than ethidium bromide.

Cat.No.	Size
39803.01	1 ml
39803.02	5 x 1 ml

### ■ SERVA DNA Stain Clear G



WARNING  
H315-H319 ◆ HS 38220000

SERVA DNA Stain Clear G is a new, non-carcinogenic, much more sensitive and convenient version of our SERVA DNA Stain G. It can be used instead of highly carcinogenic ethidium bromide for detecting nucleic acids in agarose gels. SERVA DNA Stain Clear G emits green fluorescence when bound to DNA or RNA. It has two secondary fluorescence excitation peaks (ca. 270 nm and 295 nm) and one strong excitation peak centered around 490 nm. The fluorescence emission is similar to EtBr at ca. 530 nm when bound to nucleic acid. Pre-casting and post-staining protocols are applicable. 1 ml of this stain is sufficient for 17 - 25 L of agarose gel.

Cat.No.	Size
39804.01	1 ml
39804.02	5 x 1 ml

### ■ SERVA DNA Standard 1 Kbp DNA Ladder, lyophilized

HS 38220000

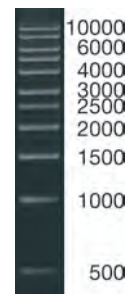
Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 1 Kbp DNA Ladder contains 11 fragments ranging from 500 bp to 10000 bp:

**500, 1000, 1500, 2000, 2500, 3000, 4000, 5000, 6000, 8000, 10000 bp.**

All fragments with EcoRI ends for easy 5'-end labelling. Ideal for the analysis of larger DNA fragments generated by enzymatic restriction of plasmid DNA or for fragments generated by PCR in combination with SERVA DNA Standard 100 bp Ladder (cat. no. 39311 or 39312). The larger sized fragments are represented in lower mass, resulting in a clear grouping of the bands. The separation distance is 70 mm in a 1.2 % agarose gel. Only 0.5 - 0.7  $\mu\text{g}$  per lane are needed; for at least 300 applications.

Instructions of use and 2 ml loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size
39314.01	4 x 50 $\mu\text{g}$

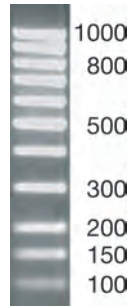


**SERVA DNA Standard 100 bp Ladder Equimolar, lyophilized**

HS 38220000  
Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 100 bp Ladder equimolar contains 11 fragments ranging from 100 bp to 1000 bp: **100, 150, 200, 300, 400, 500 (2x), 600, 700, 800, 900 and 1000 bp.**

Ideal for the analysis of DNA fragments generated from plasmid DNA or for PCR generated DNA fragments. For optimal results use 1.5 - 2 % agarose gels. A separation distance of 60 - 80 mm is recommended. All fragments with EcoRI ends for easy labelling, the 5'-end labeled DNA marker behaves like an equalized DNA marker. For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size
39311.01	50 µg

**SERVA DNA Standard 100 bp Ladder Extended, lyophilized**

HS 38220000  
Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 100 bp Ladder extended contains 17 fragments ranging from 100 bp to 5000 bp: **100, 150, 200, 300, 400, 500 (2x), 600, 700, 800, 900, 1000, 1500, 2000, 2500, 3000, 4000 and 5000 bp.**

Ideal for the analysis of DNA fragments generated from plasmid DNA or for PCR generated larger DNA fragments. For optimal results use 1.0 - 2.0 % agarose gels. A separation distance of 60 - 80 mm is recommended. All fragments with EcoRI ends for easy 5'-end labelling. For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size
39312.01	50 µg

**SERVA Dryer Frame Kit**

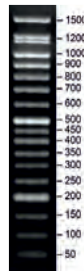
HS 90330000  
For drying of mini vertical slab gels (to up to 10 x 10 cm). Containing 2 dryer frames and 200 cellophane sheets.

Cat.No.	Size
42523.01	1 kit

**SERVA FastLoad 50 bp DNA Ladder**

HS 38220000  
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 17 fragments from 50 - 1500 base pairs. The 200 bp and 500 bp bands have increased intensity and serve as reference points. For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.56 µg/load). Recommended load is 5 µl/well. Contains Orange G as tracking dye. Stable for 12 months at 4 °C. For long term storage store at -20 °C.

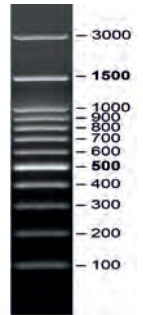


Cat.No.	Size
39315.01	500 µl

**SERVA FastLoad 100 bp DNA Ladder**

HS 38220000  
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 12 fragments from 100 - 3000 base pairs. The 500 bp and 1500 bp bands have increased intensity and serve as reference points. For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.54 µg/load). Recommended load is 5 µl/well. Contains Orange G and Xylene Cyanol as tracking dye. Stable for 6 months at 25 °C and for 12 months at 4 °C. For long term storage store at -20 °C.

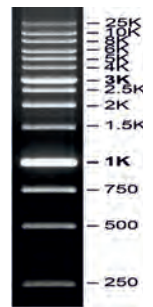


Cat.No.	Size
39316.01	500 µl

**SERVA FastLoad 1 kb DNA Ladder**

HS 38220000  
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 14 fragments from 250 - 25000 base pairs. The 1000 bp and 3000 bp bands have increased intensity and serve as reference points. For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.52 µg/load). Recommended load is 5 µl/well. Contains Orange G and Xylene Cyanol as tracking dye. Stable for 6 months at 25 °C and for 12 months at 4 °C. For long term storage store at -20 °C.



Cat.No.	Size
39317.01	500 µl

**SERVA Fluo-610 Standard I**

HS 38220000  
Storage temperature -15 °C to -25 °C

SERVA Fluo-610 Standard I is a ready-to-use fluorescent labeled protein marker for direct detection in a SDS-PAGE gel or on a membrane in Western Blotting. The marker proteins in the range from 14.4 kDa to 97.4 kDa are labelled with the highly sensitive and stable fluorescent dye Lightning Red. SERVA Lightning Red (cat. no. 43402) is a fluorescent dye for rapid labelling in minutes of proteins prior to SDS PAGE and/or Western Blotting, making any staining and washing steps after electrophoresis unnecessary. The protein standard is lyophilized for long stability and easy to resuspend.



Cat.No.	Size
39261.01	5x 50 µl

**SERVA IEF Gel 3 - 9 for PhastSystem™**

HS 38220000  
Storage temperature -15 °C to -25 °C

S Film-supported, ready-to-use polyacrylamide mini gel for IEF (pH gradient 3 - 9) on PhastSystem™. PhastSystem™ = trademark from Cytival former GE Healthcare

Cat.No.	Size
43366.01	10 gels



### ■ SERVA HiSens Stain G

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA HiSens Stain G is a highly sensitive, non-carcinogenic, non-toxic fluorescent nucleic acid stain, specially designed for in-gel staining of agarose gels. It stains double-stranded or single-stranded DNA and RNA with a sensitivity several times greater than EtBr. The detection limit in in-gel staining is around 0.1 ng of a 4-kb dsDNA band.

The stain can be detected with standard UV as well as with blue light tables. When bound to nucleic acids, the stain has fluorescent excitation maxima of 250 and 480 nm, and an emission maximum of 509 nm.

The stain is provided as a ready-to-use 10 000x stock solution.

Cat.No.	Size
39805.01	500 µl

### ■ SERVA HPE™ Coomassie® Staining Kit

HS 38220000

Colloidal staining kit for highly sensitive staining of 1D and 2D gels after electrophoresis. The kit contains two components to be mixed together prior to use. Kit contains enough reagents to stain 4 large 2D HPE™ gels. Reagents are MS compatible for downstream mass spectrometry analysis.

*Coomassie = registered trademark of ICI Ltd.*

Cat.No.	Size
43396.01	1 kit

### ■ SERVA HPE™ IPG Overlay

HS 27101985

Overlay oil to cover IPG strips during high voltage isoelectric focusing of proteins with no influence on separation behaviour of the IPG strip. Usage of the SERVA IPG Overlay is an important factor for sharp protein spots in high resolution 2D gel electrophoresis. For easy application of the oil a separate dropping bottle is included.

Cat.No.	Size
43397.01	1 L

### ■ SERVA HPE™ IPG Strip Buffer

HS 38220000

Storage temperature +2 °C to +8 °C

1 ml 40 % (w/v) SERVALYT™ mixture (pH 3-10) for IPG strip rehydration and sample preparation for 2D electrophoresis.

SERVA IPG strip buffer works for all IPG strips pH gradients. Due to the low molecular weights of the SERVALYT™ buffer molecules there is no background staining in the 2D gels.

Cat.No.	Size
43368.01	1 ml

### ■ SERVA HPE™ Lightning Red

(Fluorescence labelling)

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA HPE™ Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 2D PAGE, making any staining and washing steps after electrophoresis unnecessary. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting. The labelling procedure is simple and quick:

Typically use 80 pmol SERVA HPE™ Lightning Red for labelling of 1 µg protein. Incubate at 0 °C for 15 min. The labelled protein solution is directly applied to an IPG strip via cup- or rehydration loading.

After the 2D run, detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm.

SERVA HPE™ Lightning Red is compatible with all additives typically used for sample solubilization and protein extraction, including carrier ampholytes and reductants.

Alkaescent conditions are sufficient, it is not required to titrate the pH to a defined value.

- ◆ Direct detection
- ◆ No staining and washing steps after the run
- ◆ Very high sensitivity, < 100 pg protein / spot
- ◆ Wide dynamic and linear range of > 10<sup>4</sup>
- ◆ No over-staining effects
- ◆ Fully MS and Western Blotting compatible

The kit contains 250 µg SERVA HPE™ Lightning Red dye and DMSO.

Cat.No.	Size
43400.01	1 kit

### ■ SERVA HPE™ Silver Staining Kit



DANGER

H301-H311-H331-H334-H351-H410 ◆  
HS 38220000

Silver staining kit for highly sensitive silver staining of 2D gels. Kit contains reagents to stain 4 large 2D HPE™ gels. Reagents are MS compatible for downstream mass spectrometry analysis.

Cat.No.	Size
43395.01	1 kit

### ■ SERVA ICPL™ Kit



WARNING

H290-H302-H315-H317-H318-H319-H334-H335-H351i ◆  
HS 38220000

Storage temperature -15 °C to -25 °C

The powerful ICPL™ technology for comparative quantification of proteins with two labels:

1 - (<sup>12</sup>C<sub>6</sub><sup>1</sup>H<sub>4</sub>)-Nicotinoyloxy-succinimide

1 - (<sup>13</sup>C<sub>6</sub><sup>2</sup>H<sub>4</sub>)-Nicotinoyloxy-succinimide

Applying the ICPL™ method the simultaneous quantitative analysis of two independent proteome samples can be performed by stable protein labelling side by side.

The kit contains <sup>12</sup>C- and <sup>13</sup>C-Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A + B.

The kit contains reagents for 2 x 6 reactions. A detailed instruction manual is included.

*ICPL = trademark of TopLab GmbH, Martinsried, Germany*

#### References:

1. Schmidt, A., Kellermann, J. and Lottspeich, F. (2005), *Proteomics* **5**, 4-15
2. Brunner, A., Keidel, E., Dosch, D., Kellermann, J. and Lottspeich, F. (2010) *Proteomics* **10**, 315-326

Cat.No.	Size
39230.01	1 kit

**SERVA ICPL™ Triplex Kit**



**WARNING**  
H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000  
Storage temperature -15 °C to -25 °C

The powerful ICPL™ technology for comparative quantification of proteins with three labels:

- 1 - (<sup>12</sup>C<sub>6</sub><sup>1</sup>H<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide
- 1 - (<sup>12</sup>C<sub>6</sub><sup>2</sup>D<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide
- 1 - (<sup>13</sup>C<sub>6</sub><sup>2</sup>H<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide

Applying the ICPL™ triplex method the simultaneous quantitative analysis of three independent proteome samples can be performed by stable protein labelling side by side.

The kit contains <sup>12</sup>C-, <sup>2</sup>D- and <sup>13</sup>C- Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B and C. The kit contains reagents for 3 x 6 reactions. A detailed instruction manual is included.

ICPL = trademark of TopLab GmbH, Martinsried, Germany

**References:**

1. Schmidt, A., Kellermann, J. and Lottspeich, F. (2005), *Proteomics* 5, 4-15
2. Brunner, A., Keidel, E., Dosch, D., Kellermann, J. and Lottspeich, F. (2010) *Proteomics* 10, 315-326

Cat.No.	Size
39231.01	1 kit

**SERVA ICPL™ Quadruplex Kit**



**WARNING**  
H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000  
Storage temperature -15 °C to -25 °C

The powerful ICPL™ technology for comparative quantification of proteins with four labels:

- 1 - (<sup>12</sup>C<sub>6</sub><sup>1</sup>H<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide
- 1 - (<sup>12</sup>C<sub>6</sub><sup>2</sup>D<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide
- 1 - (<sup>13</sup>C<sub>6</sub><sup>2</sup>H<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide
- 1 - (<sup>13</sup>C<sub>6</sub><sup>2</sup>D<sub>4</sub>)<sub>2</sub>-Nicotinoyloxy-succinimide.

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side. The kit contains <sup>12</sup>C-, <sup>2</sup>D-, <sup>13</sup>C and <sup>13</sup>C<sup>2</sup>D- Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B, C and X. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

ICPL = trademark of TopLab GmbH, Martinsried, Germany

**References:**

1. Schmidt, A., Kellermann, J. and Lottspeich, F. (2005), *Proteomics* 5, 4-15
2. Brunner, A., Keidel, E., Dosch, D., Kellermann, J. and Lottspeich, F. (2010) *Proteomics* 10, 315-326

Cat.No.	Size
39232.01	1 kit

**SERVA ICPL™ Quadruplex Plus Kit**



**WARNING**  
H302-H315-H317-H319-H335-H351 ♦ HS 38220000  
Storage temperature -15 °C to -25 °C \*

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side.

Included are MS approved endoproteinases Trypsin NB and Glu-C for achieving the highest sequence coverage. All four labels can be freely combined with each other. By omitting one label you can as well compare only two or three samples. The enclosed ICPL™-Standard PLUS allows calibration of the analysis system.

The kit contains <sup>12</sup>C-, <sup>2</sup>D-, <sup>13</sup>C and <sup>13</sup>C<sup>2</sup>D- Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer, standard protein mix A, B, C and X, ICPL™-Standard PLUS, Trypsin modified, and Endoproteinase Glu-C. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

ICPL = trademark of TopLab GmbH, Martinsried, Germany

**References:**

1. Schmidt, A., Kellermann, J. and Lottspeich, F. (2005), *Proteomics* 5, 4-15
2. Brunner, A., Keidel, E., Dosch, D., Kellermann, J. and Lottspeich, F. (2010) *Proteomics* 10, 315-326

Cat.No.	Size
39233.01	1 kit

**SERVA IPG BlueStrip 3-10 / 7 cm**

(IPG Strips)  
HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43001.01	12 strips

**SERVA IPG BlueStrip 3-10 / 11 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43031.01	12 strips

**SERVA IPG BlueStrip 3-10 / 17 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43041.01	12 strips

**SERVA IPG BlueStrip 3-10 / 18 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43011.01	12 strips

**SERVA IPG BlueStrip 3-10 / 24 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43021.01	12 strips



■ **SERVA IPG BlueStrip 5-8 / 7 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43006.01	12 strips

■ **SERVA IPG BlueStrip 5-8 / 11 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43036.01	12 strips

■ **SERVA IPG BlueStrip 5-8 / 17 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43046.01	12 strips

■ **SERVA IPG BlueStrip 5-8 / 18 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43016.01	12 strips

■ **SERVA IPG BlueStrip 5-8 / 24 cm**

HS 38220000  
Storage temperature -15 °C to -25 °C \*\*

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size
43026.01	12 strips

■ **SERVA Lightning Sci2 lyophilized**

HS 38220000  
Storage temperature -15 °C to -25 °C

SERVA Lightning Sci2 is a Cyanine2 NHS ester for minimal labelling and maximum detection of proteins prior to protein detection in 2D Fluorescence Difference Gel Electrophoresis (DIGE). Minimal labelling with SERVA Lightning Sci2, Sci3 and Sci5 allows for the precise comparison of protein expression in two or three samples. The dyes are charge- and size-matched enabling high efficient detection and high resolution of minor proteins on 2D gel electrophoresis. SERVA Lightning Sci2 is compatible with all imagers suitable for detection of Cy2®. Gels labelled with SERVA Lightning SciDyes are ready for subsequent mass spectrometry analysis. Each vial contains specified amount of NHS ester with a tolerance variation of 10 %.

**Special properties:**  
Fluorescence colour Green  
Excitation maximum 490 nm  
Emission maximum 510 nm

Cy2® = trademark of GE Healthcare Company

Cat.No.	Size
43404.01	5 NMOL
43404.02	10 NMOL
43404.03	25 NMOL

■ **SERVA Lightning Sci3 lyophilized**

HS 38220000  
Storage temperature -15 °C to -25 °C

SERVA Lightning Sci3 is a Cyanine3 NHS ester for minimal labelling and maximum detection of proteins prior to protein detection in 2D Fluorescence Difference Gel Electrophoresis (DIGE). Minimal labelling with SERVA Lightning Sci2, Sci3 and Sci5 allows for the precise comparison of protein expression in two or three samples. The dyes are charge- and size-matched enabling high efficient detection and high resolution of minor proteins on 2D gel electrophoresis. SERVA Lightning Sci3 is compatible with all imagers suitable for detection of Cy3®. Gels labelled with SERVA Lightning SciDyes are ready for subsequent mass spectrometry analysis. Each vial contains specified amount of NHS ester with a tolerance variation of 10 %.

**Spectral properties:**  
Fluorescence colour Yellow  
Excitation maximum 555 nm  
Emission maximum 570 nm

Cy3® = trademark of GE Healthcare Company

Cat.No.	Size
43405.01	5 NMOL
43405.02	10 NMOL
43405.03	25 NMOL

■ **SERVA Lightning Sci5 lyophilized**

HS 38220000  
Storage temperature -15 °C to -25 °C

SERVA Lightning Sci5 is a Cyanine5 NHS ester for minimal labelling and maximum detection of proteins prior to protein detection in 2D Fluorescence Difference Gel Electrophoresis (DIGE). Minimal labelling with SERVA Lightning Sci2, Sci3 and Sci5 allows for the precise comparison of protein expression in two or three samples. The dyes are charge- and size-matched enabling high efficient detection and high resolution of minor proteins on 2D gel electrophoresis. SERVA Lightning Sci5 is compatible with all imagers suitable for detection of Cy5®. Gels labelled with SERVA Lightning SciDyes are ready for subsequent mass spectrometry analysis. Each vial contains specified amount of NHS ester with a tolerance variation of 10 %.

**Spectral properties:**  
Fluorescence colour Red  
Excitation maximum 645 nm  
Emission maximum 660 nm

Cy5® = trademark of GE Healthcare Company

Cat.No.	Size
43406.01	5 NMOL
43406.02	10 NMOL
43406.03	25 NMOL



### SERVA Lightning SciDye Set

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Lightning SciDyes are designed for minimal labelling and maximum detection of proteins prior to protein detection in 2D Fluorescence Difference Gel Electrophoresis (DIGE). They allow for the precise comparison of protein expression in two or three samples. SERVA Lightning SciDyes are compatible with all imagers suitable for detection of Cy2®, Cy3® and Cy5®. Gels labelled with SERVA Lightning SciDyes are ready for subsequent mass spectrometry analysis.

SERVA Lightning SciDye Set consists of one vial each of SERVA Lightning Sci2 (cat. no. 43404) SERVA Lightning Sci3 (cat. no. 43405) and SERVA Lightning Sci5 (cat. no. 43406).

Each vial contains specified amount of NHS ester with a tolerance variation of 10 %.

Cy2®, Cy3® and Cy5® = trademarks of GE Healthcare Company

Cat.No.	Size
43407.01	5 NMOL
43407.02	10 NMOL
43407.03	25 NMOL

### SERVA Mag Rack

HS 90279050

Rack for 12 tubes from 0.5 up to 2.0 ml.

To separate magnetic beads from liquid simply raise the plate equipped with 12 single magnets, the position of the plate will be secured by one extra magnet at each site. The magnetic particles will be attached to one site of the tube, allowing the researcher to pipette out the solution very easily, leaving the magnetic particles in the tube.



Cat.No.	Size
MR-12	1 piece

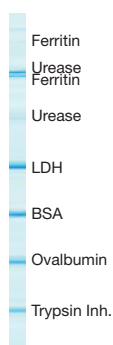
### SERVA Native Marker, Liquid Mix for BN/CN

HS 38220000

Storage temperature -15 °C to -25 °C

Molecular Weight Marker for Blue and Clear Native PAGE. Ready-to-use. Contains native proteins ranging from 720 kDa to 21 kDa.

Ferritin horse	$M_r$ 450 000/720 000
Urease jack bean	$M_r$ 272 000/545 000
Lactate dehydrogenase porcine	$M_r$ 146 000
Albumin bovine	$M_r$ 67 000
Albumin egg	$M_r$ 45 000
Trypsin inhibitor soybean	$M_r$ 21 000



Cat.No.	Size
39219.01	5 x 50 µl

### SERVA Ni-IDA HD Agarose Resin

HS 38220000

High density nickel-iminodiacetic acid (IDA) crosslinked agarose resin for low pressure affinity chromatography. The high amount of available nickel chelate groups allows for high binding capacity. Nickel chelates recognize two exposed histidine tags with high specificity and very high affinity.

Therefore a nickel charged matrix is recommended for most standard purifications. Suitable for batch or column purifications. Binding/loading capacity: 20 - 40 µmol Me<sup>2+</sup>/ml gel.

Cat.No.	Size
42141.01	25 ml
42141.02	100 ml

### SERVA Ni-NTA Agarose Resin

(NTA-Agarose Resins)

HS 38220000

Storage temperature +2 °C to +8 °C

High capacity nickel-nitrilotriacetic acid (NTA) crosslinked agarose resin for low pressure affinity chromatography. The four metal-binding sites on the chelate enable high-protein binding and minimal metal leaching. Ideal for purification under denaturing conditions. Handling is easy and identical to standard protocols of other manufacturers, therefore there is no need to change established protocols. Suitable for batch and column purification. Binding capacity: > 50 mg/ml gel.

Cat.No.	Size
42139.01	25 ml
42139.02	100 ml

### SERVA Ni-NTA Magnetic Beads

HS 38220000

Storage temperature +2 °C to +8 °C

High capacity nickel-nitrilotriacetic acid (NTA) magnetic agarose beads (5 %) for rapid and easy small scale purification of His-tagged proteins under native or denaturing conditions.

Binding capacity: > 75 mg His-tagged protein/ml gel.

Cat.No.	Size
42179.01	2 ml
42179.02	10 ml

### SERVA PRiME Lightning Red

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA Lightning Red is a fluorescent dye for rapid labelling of proteins prior to SDS PAGE and/or Western Blotting, making any staining and washing steps after electrophoresis unnecessary. Normalization in Western Blots by using the total protein signal on the membrane as loading control can be easily done with the pre-labelled samples. In addition, the dye is fully compatible with mass spectrometry and other downstream methods. The labelling procedure is simple and quick: 2 - 5 min for qualitative and 30 min for quantitative analysis.

For separation of the labelled proteins a wide range of gel formats including precast gels in plastic cassettes like SERVAGel/ PRiME Vertical Mini Gels and film-backed gels can be used.

The labelling works with complex and purified samples in a protein concentration range between 1 µg/ml up to 20 mg/ml - no need for protein concentration measurement or purification and concentration steps before or after labelling.

After the run, detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm. Depending on the used protocol sufficient for 250 - 1250 lanes - no matter what size of gel (mini, wide or large format) you use.

- ◆ Simple and fast pre-labelling of proteins for SDS PAGE and Western Blotting
- ◆ No need for protein concentration measurement or purification and concentration steps before or after labelling
- ◆ No staining and washing steps after the run
- ◆ Broad protein concentration range
- ◆ Very high sensitivity, very low background
- ◆ Wide dynamic and linear range
- ◆ Compatible with all common gel electrophoresis buffer systems and mass spectrometry

Cat.No.	Size
43402.01	1 kit



**SERVA ProteinStain Fluo-R powder**

C<sub>72</sub>H<sub>42</sub>N<sub>6</sub>O<sub>18</sub>S<sub>6</sub>•Na<sub>4</sub>Ru M<sub>r</sub> 1664.5

WGK 2L ♦ HS 28439090

SERVA ProteinStain Fluo-R is a highly sensitive fluorescent dye for detection of proteins in e. g. SDS PAGE, native PAGE or 2D gels. The dye does not interfere with immunodetection. Therefore you can stain your gel with SERVA ProteinStain Fluo-R and then proceed with Western Blotting receiving a copy of your gel on the membrane.

The dye can as well be used for pre-staining, just use it in the loading buffer instead of bromophenol blue or other dyes.

It is as sensitive as silver staining, but has superior staining properties, which makes it the first choice for proteomic research. The dye has a good linearity, high contrast and is compatible with MS/MS analysis. The staining can be as well combined with silver staining and DIGE.

The dye is easily soluble in water. Just dissolve 5 mg in 3 L water to receive a 1 µM staining solution. Or prepare a 20 mM stock solution by dissolving 5 mg in 150 µl water. The dye is best excited with blue light of wave length 473/488 nm. Excitation with laser light of wave length 532 nm is as well possible, but less sensitive.

Cat.No.	Size
35090.01	5 mg

**SERVA Proteome Markers**

HS 38220000

Storage temperature -15 °C to -25 °C

5 vials of marker proteins, lyophilized, approx. 5 -10 applications per vial for 2D electrophoresis.



Kindly provided by the organization of the „10. Arbeitstagung Mikromethoden in der Proteinchemie“ in 2003, Martinsried, Germany

- Glucose oxidase (*Aspergillus niger*) M<sub>r</sub> 77 000
- Albumin (bovine) M<sub>r</sub> 67 000
- Catalase M<sub>r</sub> 58 000
- Lipase (from bacteria) M<sub>r</sub> 33 000
- Glucose-1-dehydrogenase (from bacteria; M<sub>r</sub> 113 000) M<sub>r</sub> 32 000 (subunits)
- β-Lactoglobulin (bovine) M<sub>r</sub> 18 400
- Myoglobin (horse) M<sub>r</sub> 17 800
- Cytochrome C (horse) M<sub>r</sub> 11 700

Cat.No.	Size
39220.01	1 kit

**SERVA Purple Protein Quantification Assay**

HS 38220000

Storage temperature -15 °C to -25 °C

The assay bases on the eco-friendly fluorescent dye SERVA Purple. The dye reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product (λ<sub>Ex</sub> 518 nm, λ<sub>Em</sub> 610 nm). The assay exhibits very low protein binding variation, leading to more accurate protein concentration values.

- ♦ Fast and simple - no heating and reduction steps, completed in 1 h
- ♦ Compatible with many detergents and reducing agents
- ♦ Accurate staining of glyco-, phospho-, hydrophobic proteins and peptides
- ♦ Single tube and 96- or 384-well-format for high-throughput
- ♦ Detection limit of 100 ng/ml for peptides and 40 ng/ml for proteins
- ♦ Linear quantification over 3 orders of magnitude
- ♦ Compatible with downstream applications like 1D- and 2D-PAGE, MS, DIGE-labelling, HPLC

Cat.No.	Size
39235.01	10 ml

**SERVA Purple, 250x concentrate**



DANGER

H225-H302-H312-H319-H332 ♦ GGVSE/ADR 3 II UN1648

♦ IATA 3 II UN1648 ♦ WGK 2L ♦ HS 38220000

Storage temperature -15 °C to -25 °C

The fluorescent dye Deep Purple (marketed by GE) and LavaPurple (marketed by Gelcompany and SERVA) has been used by many laboratories for staining proteins in gels and on blotting membranes. The dye is based on a small naturally occurring fluorescent compound “Epicocconone” that reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product. SERVA Purple is a further development of this compound “Epicocconone”. It has improved properties due to a novel production and purification technology by unchanged cost-effectiveness compared to other fluorescence dyes or even silver staining.

- ♦ Environmentally friendly, easy to use
- ♦ Sensitivity to as low as 50 pg/band
- ♦ Linear quantification over 4 orders of magnitude
- ♦ Compatible with MS, DIGE-labelling
- ♦ After imaging gel can be further processed by Western Blotting

**References:**

1. Moritz C.P. et al. (2014) Proteomics, Vol. 14, Issue 2-3, p. 162–8, Epicocconone staining: a powerful loading control for Western blots.

Cat.No.	Size
43386.03	5 ml
43386.01	25 ml

**SERVA Purple HiSens, 250x concentrate**



DANGER

H225-H302-H312-H319-H332 ♦ GGVSE/ADR 3 II UN1648

♦ IATA 3 II UN1648 ♦ WGK 2L ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Total protein stain for non-denaturing and denaturing 1D and 2D gel electrophoresis and blotting. The dye reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product (λ<sub>Ex</sub> 518 nm, λ<sub>Em</sub> 610 nm).

SERVA Purple HiSens shows highest sensitivity compared to most other protein stains. Even difficult to stain proteins as glycoproteins and lipoproteins can be accurately detected.

Although this modified version of SERVA Purple has a significantly increased sensitivity, its cost-effectiveness as against other fluorescent dyes or even silver staining is unchanged.

- ♦ Environmentally friendly, easy to use
- ♦ Sensitivity to as low as <20 pg/band
- ♦ Linear quantification over 4 orders of magnitude
- ♦ Compatible with MS, DIGE-labelling
- ♦ After imaging gel can be further processed by Western Blotting

**References:**

1. Moritz C.P. et al. (2014) Proteomics, Vol. 14, Issue 2-3, p. 162–8, Epicocconone staining: a powerful loading control for Western blots.

Cat.No.	Size
43408.01	5 ml
43408.02	25 ml

**SERVA SDS Gel 8-25 % Kit for PhastSystem™**

HS 38220000

Kit for SDS PAGE on PhastSystem™

Contains:

- 10 film-supported, ready-to-use polyacrylamide mini gels (size 50 mm x 42 mm x 0.43 mm)
- 20 ml Anode Buffer
- 20 ml Cathode Buffer
- 20 Electrode wicks

PhastSystem™ = trademark from Cytival former GE Healthcare

Cat.No.	Size
43503.01	1 kit

**SERVA Silver Staining Kit Native PAGE for 25 gels**

DANGER

H301-H311-H314-H317-H351-H411 ♦  
HS 38220000

Silver staining kit for easy and rapid staining of proteins after native PAGE, e.g. of IEF gels:

- ◆ Contains everything needed for fixation and staining
- ◆ Fast staining procedure (45 - 60 min.)
- ◆ Very low background
- ◆ High sensitivity
- ◆ With detailed staining manual
- ◆ For 25 applications

Cat.No.	Size
35077.01	1 kit

**SERVA Silver Staining Kit SDS PAGE for 25 gels**

DANGER

H226-H301-H311-H314-H317-H351  
-H411 ♦ HS 38220000

Silver staining kit for easy and rapid staining of proteins after SDS PAGE:

- ◆ Contains everything needed for fixation and staining
- ◆ Fast staining procedure (45 - 60 min.)
- ◆ Very low background
- ◆ High sensitivity
- ◆ With detailed staining manual
- ◆ For 25 applications

Cat.No.	Size
35076.01	1 kit

**SERVA Streptavidin Agarose Resin**

HS 38220000

Storage temperature +2 °C to +8 °C

High specific activity streptavidin immobilized on 6 % highly crosslinked agarose for easy isolation of biotinylated biomolecules and cell sorting. The superior coupling chemistry used to prepare this resin leads to a higher binding capacity with lower non-specific binding and less leaching. Handling is easy and identical to standard protocols of other manufacturers, therefore there is no need to change established protocols. Suitable for batch and column purification.

Binding capacity: &gt; 120 nmol biotin/ml gel

Cat.No.	Size
42178.01	5 ml
42178.02	10 ml

**SERVA TAE Clear G Agarose Tablets**

HS 38220000

SERVA TAE Clear G Agarose Tablets are fast-solving tablets which not only contain TAE buffer but as well the non-carcinogenic, sensitive fluorescent dye DNA Stain Clear G.

Just add water, solve the agarose and your agarose gel is ready!

- ◆ For analytical and preparative DNA and RNA gel electrophoresis and blotting (100 bp - ≥30 kb)
- ◆ Fast-solving agarose for gels with high clarity and low background
- ◆ Optimized mixture for high resolution of sharp bands with high sensitivity
- ◆ No clumping because separately packed in blister pack

Cat.No.	Size
39807.01	75 TABLETS

**SERVA TBE Clear G Agarose Tablets**

HS 38220000

SERVA TBE Clear G Agarose Tablets are fast-solving tablets which not only contain TBE buffer but as well the non-carcinogenic, sensitive fluorescence dye DNA Stain Clear G.

Just add water, solve the agarose and your agarose gel is ready!

- ◆ For analytical and preparative DNA and RNA gel electrophoresis and blotting (100 bp - ≥30 kb)
- ◆ Fast-solving agarose for gels with high clarity and low background
- ◆ Optimized mixture for high resolution of sharp bands with high sensitivity
- ◆ No clumping because separately packed in blister pack

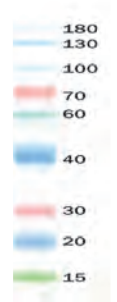
Cat.No.	Size
39806.01	75 tablets

**SERVA Triple Color Protein Standard I**

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard I is a ready-to-use protein marker of 9 recombinant pre-stained proteins of a wide molecular weight range from 15 to 180 kDa (separation on a SDS Tris-Glycine gel). The protein ladder is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins. Proteins are covalently coupled with a blue chromophore except for four reference bands, two green bands at 15 kDa and 60 kDa and two red bands at 30 kDa and 70 kDa (separation on a SDS Tris-glycine gel).



Cat.No.	Size
39251.01	500 µl

**SERVA Triple Color Protein Standard II**

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard II is a mixture of 10 pre-stained proteins of a molecular weight range from 11 to 180 kDa (separation on a SDS Tris-glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-glycine gel). It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard II is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 - 5 µl/lane.



Cat.No.	Size
39257.01	500 µl

**SERVA Triple Color Protein Standard III**

HS 38220000  
Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard III is a mixture of 13 pre-stained proteins of a molecular weight range from 5 to 245 kDa (separation on a SDS Tris-glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-glycine gel).

It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard III is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 – 5 µl/lane.



Cat.No.	Size
39258.01	500 µl

**SERVA Tris-Glycine Native Electrophoresis Buffer (10x)**

HS 38220000  
Running buffer for native PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine.

Cat.No.	Size
42530.01	1 L

**SERVA Tris-Glycine Native Sample Buffer (2x)**

HS 38220000  
Storage temperature +2 °C to +8 °C

Sample buffer for native PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol and 0.02 % bromophenol blue.

Cat.No.	Size
42528.01	20 ml

**SERVA Tris-Glycine/LDS Sample Buffer (4x)**

HS 38220000  
Storage temperature +2 °C to +8 °C

Modified sample buffer for SDS PAGE, delivered as 4x concentrate. Lithium dodecyl sulfate (LDS) replaces the commonly used sodium dodecyl sulfate (SDS) in the triethanolamine buffered sample buffer. LDS prevents degradation of proteins during sample preparation and heating and stabilizes the pH of the sample during gel run. It does not crystallize at lower temperatures due to significantly better solubility than SDS. Hence, protein stability as well as band resolution is significantly enhanced by cooled gel runs.

For reducing conditions the sample buffer may be supplemented with 10 mM DTT or 5 % β-mercaptoethanol (end concentration 1x sample buffer). Contains:

Triethanolamine buffered, 40 % glycerol, 4 % Ficoll® 400, 4 % LDS, 0.025 % phenol red and 0.025 % bromophenol.

Cat.No.	Size
42525.01	10 ml

**SERVA Tris-Glycine/SDS Electrophoresis Buffer (10x)**

HS 38220000  
Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine, 1 % SDS.

Cat.No.	Size
42529.01	1 L


**SERVA Tris-Glycine/SDS Sample Buffer (2x)**

(Tris-Glycine/SDS Sample Buffer)  
HS 38220000  
Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size
42527.01	20 ml

**SERVA Tris-SDS Sample Buffer pH 8.6 (10X)**

 **WARNING**  
H315 - H319 ♦ HS 38220000  
HS 38220000  
Storage temperature +2 °C to +8 °C

Non-reducing sample buffer for SDS PAGE, delivered as 10x concentrate. Ideal for diluted samples. Due to the basic pH the sample buffer can be used for labelling of proteins with e.g. Lightning Red or DIGE dyes prior to electrophoresis.

For reducing conditions the sample buffer may be supplemented with 10 mM DTT or 5 % β-mercaptoethanol (end concentration 1x sample buffer). Contains: 290 mM Tris, 210 mM Tris-HCl, 25 % glycerol, 10 % SDS and 0.1 % bromophenol

Cat.No.	Size
42546.01	10 ml

**SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x)**

HS 38220000  
Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 1 M Tris, 1 M Tricine and 1 % SDS.

Cat.No.	Size
42552.01	1 L

**SERVA Tris-Tricine/SDS Electrophoresis Buffer (20x)**

HS 38220000  
Running buffer for SDS PAGE. Optimized formulation to improve sharpness of bands, especially when used together with SERVAGel® Neutral pH 7.4 (cat. no. 43220 and 43221) precast gels. Supplied as 20 x concentrate. Contains 1.2 M Tris (pH 8.5), 0.8 M Tricine and 2 % SDS.

Cat.No.	Size
42560.01	1 L

**SERVA Tris-Tricine/SDS Sample Buffer (2x)**

HS 38220000  
Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2 x concentrate. Contains 900 mM Tris/HCl (pH 8.45), 24 % glycerol, 4 % SDS, 0.015 % SERVA Blue G and 0.005 % phenol red.

Cat.No.	Size
42551.01	20 ml

**SERVA Unstained Protein Standard 6.5 - 97 kDa**

HS 38220000  
Storage temperature -15 °C to -25 °C

Ready-to-use protein marker that contains 7 native proteins ranging from 6.5 to 97.4 kDa.

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 35076), dilute 1:5 in 1x Laemmli Buffer and apply 5 µl.

- Phosphorylase B Mr 97 400
- Albumin bovine (BSA) Mr 67 000
- Ovalbumin Mr 45 000
- Carbonic anhydrase Mr 29 000
- Trypsin inhibitor (soybean) Mr 21 000
- Cytochrom C Mr 12 500
- Trypsin inhibitor (bovine) Mr 6 500



Cat.No.	Size
39214.01	500 µl

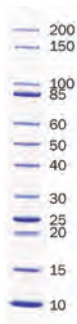
### SERVA Unstained Protein Standard IV

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Unstained Protein Standard IV is a mixture of 12 unstained recombinant proteins of a molecular weight range from 10 to 200 kDa (separation on a SDS Tris-glycine gel). The 25 kDa and 85 kDa bands have double intensity for easy allocation of protein molecular weights. It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Unstained Protein Standard IV is designed for molecular weight determination in SDS PAGE and verification of Western Blotting transfer efficiency.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 5 µl/lane.



Cat.No.	Size
39250.01	500 µl

### SERVA UV-Table CI 254 nm, 22 x 28 cm

HS 90278017

UV table with wavelength of 254 nm and filter size of 22 x 28 cm. Suitable for digital image analysis. Stainless steel filter frame and robust steel housing. Homogeneous UV light for uniform illumination of samples and high UV intensity due to the use of reflectors made of refined aluminium.

Cat.No.	Size
UV-CI	1 piece

### SERVA UV-Table C II 312 nm, 22 x 28 cm, w. Lid for DIAS-II

HS 90278017

UV table with wavelength of 312 nm and filter size of 22 x 28 cm. Suitable for digital image analysis, preparation of nucleic acids and other daily routine work. Stainless steel filter frame and robust steel housing. Homogeneous UV light for uniform illumination of samples and high UV intensity due to the use of reflectors made of refined aluminium. Applicable as a white or blue light table in combination with the UV/WL or UV/BL converter screen (cat. nos. UV-WLC, UV-BLC). The removable adjustable UV protection shield is adapted to the special needs when used in combination with the SERVA Digital Imaging and Analysis System III (DIAS-III).



Cat.No.	Size
UV-CII	1 piece

### SERVA UV-Table CIIL

HS 90278017

UV table with wavelength of 312 nm and filter size of 22 x 28 cm. Suitable for digital image analysis, preparation of nucleic acids and other daily routine work. Stainless steel filter frame and robust steel housing. Homogeneous UV light for uniform illumination of samples and high UV intensity due to the use of reflectors made of refined aluminium. The lid serves as removable adjustable UV protection shield. Applicable as a white or blue light table in combination with the UV/WL or UV/BL converter screen (cat. nos. UV-WLC, UV-BLC).

Cat.No.	Size
UV-CIIL	1 piece

### SERVA Violet 17

(Acid Violet 17; COOMASSIE® Violet R-150)

C.I.42650 ♦ C<sub>21</sub>H<sub>16</sub>N<sub>3</sub>O<sub>5</sub>S<sub>2</sub>·Na ♦ M<sub>r</sub> 761.9 ♦

CAS [4129-84-4]



H411 ♦ #i#GGVSE/ADR 9 III UN3077 ♦

IATA 9 III UN3077 ♦ EINECS 223-942-6 ♦ WGK 3L ♦

HS 32041200

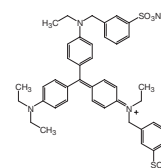
For staining of proteins in PAGE.

λ max. (0.001 % in water) 544 - 550 nm

A 1 cm/λ max./0.001 % in water min. 0.8

Water (KF) max. 10.0 %

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size
35072.02	25 g
35072.03	100 g

### SERVA Violet 17 Staining Kit



ANGER

H314-H411 ♦ GGVSE/ADR 8 III UN1805 ♦ IATA 8 III UN1805

♦ HS 38220000

The SERVA Violet 17 Staining Kit is suited to stain all vertical and horizontal gels after isoelectric focusing (IEF). The kit is convenient, safe and easy to use and contains everything needed for fixation, staining and destaining. The colloidal stain SERVA Violet 17 gives you high sensitivity when staining IEF gels. No organic solvents are needed to apply SERVA Violet 17 staining. The SERVA Violet 17 Staining Kit contains 1 g SERVA Violet 17 and 500 ml stain solubilizer solution, ready-to-use solutions for fixation (2 x 500 ml) and destaining (500 ml) and a detailed protocol for the detection procedure. The kit contains enough stain and solutions for 5 to 10 applications (large/small gels).

Cat.No.	Size
35074.01	1 kit

### SERVA VisiBlot Standard I

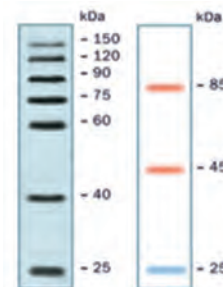
HS 38220000

Storage temperature -15 °C to -25 °C

VisiBlot Standard I is a mixture of 10 recombinant proteins of a molecular weight range from 25 kDa to 150 kDa. Protein bands of 25 kDa, 45 kDa and 85 kDa are prestained allowing monitoring of protein separation during SDS PAGE. The remaining five proteins contain several IgG binding sites. Hence marker proteins bind to primary or secondary antibodies used in Western Blotting facilitating easy marker visualization on the transfer membrane. Because the proteins have no chromophore attached, the marker enables accurate molecular weight estimation.

Recommended loading volume for a mini gel is 5 µl/lane.

- ♦ Ready-to-use, no reconstitution, further dilution or heating required
- ♦ Prestained bands for monitoring electrophoresis and membrane transfer
- ♦ Visualization of marker proteins on Western Blots by horseradish peroxidase or alkaline phosphatase-based immune-detection methods
- ♦ Molecular weight determination of proteins detected on transfer membrane



Cat.No.	Size
39260.01	500 µl

### SERVA White Light Table 22 x 28 cm

HS 90278017

White light table with filter size of 22 x 28 cm. Suitable for digital image analysis and other daily routine work. Stainless steel filter frame and robust steel housing.

Cat.No.	Size
WL-28	1 piece



**SERVAColor BCIP/NBT Blot Solution**

HS 38220000  
Storage temperature +2 °C to +8 °C

Ready-to-use, non-toxic, highly sensitive substrate solution for detection of alkaline phosphatase (AP) in membrane assays. Forms dark purple precipitates at the sites of AP activity on membranes.

- ◆ Rapid precipitate formation due to high activity
- ◆ High contrast due to very low background
- ◆ Long term stability at room temperature
- ◆ No significant fading after reaction stop

Cat.No.	Size
15245.01	250 ml

**SERVAColor TMB Blot Solution**

HS 38220000  
Storage temperature +2 °C to +8 °C

Ready-to-use, non-toxic, highly sensitive substrate solution for detection of horseradish peroxidase (HRP) in membrane assays. Forms dark blue precipitates at the sites of HRP activity on membranes.

- ◆ Rapid precipitate formation due to high activity
- ◆ High contrast due to very low background
- ◆ Long term stability at room temperature
- ◆ No significant fading after reaction stop

Cat.No.	Size
37071.02	250 ml

**SERVAGel™ TG PRiME™ 8 % precast gel, 10 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size
43261.01	10 gels

**SERVAGel™ TG PRiME™ 8 % precast gel, 12 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size
43260.01	10 gels

**SERVAGel™ TG PRiME™ 8 % precast gel, 15 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size
43284.01	10 gels

**SERVAGel™ TG PRiME™ 10 % precast gel, 10 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size
43264.01	10 gels

**SERVAGel™ TG PRiME™ 10 % precast gel, 12 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size
43263.01	10 gels

**SERVAGel™ TG PRiME™ 10 % precast gel, 15 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size
43285.01	10 gels

**SERVAGel™ TG PRiME™ 12 % precast gel, 10 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size
43267.01	10 gels

**SERVAGel™ TG PRiME™ 12 % precast gel, 12 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size
43266.01	10 gels

**SERVAGel™ TG PRiME™ 12 % precast gel, 15 sample wells**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size
43286.01	10 gels

**SERVAGel™ TG PRiME™ 12 % precast gel, 2D well**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size
43268.01	10 gels



#### ■ **SERVAGel™ TG PRiME™ 14 %** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel **SERVAGel™ TG PRiME™ 14 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size
43270.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 14 %** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel **SERVAGel™ TG PRiME™ 14 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size
43269.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 14 %** precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel **SERVAGel™ TG PRiME™ 14 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size
43287.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 14 %** precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, the precast gel **SERVAGel™ TG PRiME™ 14 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size
43271.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 12 %** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 12 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size
43274.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 12 %** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 12 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size
43273.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 12 %** precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 12 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size
43288.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 20 %** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 20 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size
43277.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 20 %** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 20 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size
43276.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 4 - 20 %** precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 4 - 20 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size
43289.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 8 - 16 %** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 8 - 16 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size
43280.01	10 gels

#### ■ **SERVAGel™ TG PRiME™ 8 - 16 %** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, **SERVAGel™ TG PRiME™ 8 - 16 %** features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size
43279.01	10 gels

■ **SERVAGel™ TG PRiME™ 8- 16 %** precast gel, 15 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa

Cat.No.	Size
43290.01	10 gels

■ **SERVAGel™ TG PRiME™ 8 - 16 %** precast gel, 2D well

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 -16 % features an extended shelf life and short electrophoresis times by using a standard Tris/glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size
43281.01	10 gels

■ **SERVAGel™ Neutral HSE** precast gel, 10 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43223). With the standard SDS-Tris-glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.  
Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43246.01	10 gels

■ **SERVAGel™ Neutral HSE** precast gel, 12 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43221). With the standard SDS-Tris-glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.  
Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43245.01	10 gels

■ **SERVAGel™ Neutral HSE** precast gel, 15 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43223). With the standard SDS-Tris-glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.  
Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43249.01	10 gels

■ **SERVAGel™ Neutral HSE, 2D** precast gel, 2D well

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral HSE, 2D well is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient. With the standard SDS-Tris-glycine buffer system (Laemmli) two 2D gels can be operated at 300 V, which reduces the electrophoresis time to 40 min.

For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43247.01	10 gels

■ **SERVAGel™ Neutral pH 7.4** precast gel, 10 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43222.01	10 gels

■ **SERVAGel™ Neutral pH 7.4** precast gel, 12 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43220.01	10 gels

■ **SERVAGel™ Neutral pH 7.4** precast gel, 15 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.

Cat.No.	Size
43256.01	10 gels

■ **SERVAGel™ N 3 - 12, Vertical Native Gel 3 - 12 %** precast gel, 10 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 3 - 12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43251.01	10 gels

■ **SERVAGel™ N 3 - 12, Vertical Native Gel 3 - 12 %** precast gel, 12 sample wells

HS 38220000  
Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 3 - 12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43250.01	10 gels

### ■ SERVAGel™ N 3 - 12, Vertical Native Gel 3 - 12 %

precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 3 - 12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43254.01	10 gels

### ■ SERVAGel™ N 4 - 16, Vertical Native Gel 4 - 16 %

precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 4 - 16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43252.01	10 gels

### ■ SERVAGel™ N 4 - 16, Vertical Native Gel 4 - 16 %

precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 4 - 16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43253.01	10 gels

### ■ SERVAGel™ N 4 - 16, Vertical Native Gel 4 - 16 %

precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ N 4 - 16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size
43255.01	10 gels

### ■ SERVAGel™ N Native Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C \*

The SERVAGel™ N gels were developed for native gel electrophoresis. The gels can be operated in Blue and Clear Native buffer systems. Due to their neutral buffer system, the SERVAGel™ N gels feature extended shelf life.

Contains:

2 precast gels SERVAGel™ N 3 - 12, Vertical Native Gels 3 - 12 %

2 precast gels SERVAGel™ N 4 - 16, Vertical Native Gels 4 - 16 %

250 ml 10x Native Anode Buffer for BN/CN (cat. no. 42535)

250 ml 10x Native Cathode Buffer for BN/CN (cat. no. 42536)

50 µl SERVA Native Marker Liquid Mix for BN/CN (cat. no. 39219)

2 ml Sample Buffer for Blue Native (2x) (cat. no. 42533)

2 ml Sample Buffer for Clear Native (2x) (cat. no. 42534)

5 ml SERVA Blue G Solution for BN, 1 % (cat. no. 42538)

Cat.No.	Size
43204.01	1 kit

### ■ SERVAGel™ IEF 3 - 10 precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size
43242.01	10 gels

### ■ SERVAGel™ IEF 3 - 10 precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size
43240.01	10 gels

### ■ SERVAGel™ IEF 3 - 10 precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size
43239.01	10 gels

### ■ SERVAGel™ IEF 4 - 7 precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The SERVAGel™ IEF 4 - 7 can be operated under native or denaturing conditions. The concentration of the acrylamide matrix is 5 % T, 3 %C, SERVALYT™ content is approx. 3 %.

Cat.No.	Size
43243.01	10 gels

### ■ SERVAGel™ IEF 4 - 7 precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The SERVAGel™ IEF 4 - 7 can be operated under native or denaturing conditions. The concentration of the acrylamide matrix is 5 % T, 3 %C, SERVALYT™ content is approx. 3 %.

Cat.No.	Size
43241.01	10 gels

### ■ SERVAGel™ IEF 4 - 7 precast gel, 15 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C \*

The SERVAGel™ IEF 4 - 7 can be operated under native or denaturing conditions. The concentration of the acrylamide matrix is 5 % T, 3 %C, SERVALYT™ content is approx. 3 %.

Cat.No.	Size
43244.01	10 gels

**SERVAGel™ IEF Starter Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C \*

Contains:  
4 SERVAGel™ IEF precast gels of your choice (cat. no. 43240 or 43242)  
SERVA IEF Anode Buffer (1x, powder for 2.5 L buffer, cat. no. 42539)  
SERVA IEF Cathode Buffer 3-10 (10x, powder for 100 ml buffer, cat. no. 42539)  
IEF Sample Buffer (2x 1 ml, cat. no. 42537)  
SERVA Violet 17 (0.5 g, cat. no. 35072)  
SERVA IEF Marker 3-10, Liquid Mix (30 µl, cat. no. 39212)

Cat.No.	Size
43205.01	1 kit

**SERVAGel™ IEF Running Buffer Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Running Buffer Kit for SERVAGel™ IEF 3 - 10.  
Contains:  
SERVA IEF Anode Buffer (1x, powder for 5 L buffer)  
SERVA IEF Cathode Buffer 3 - 1 0 (10x, powder for 200 ml buffer)

Cat.No.	Size
42539.01	1 kit

**SERVALight Polaris CL HRP WB Substrate Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.  
The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ High sensitivity, low picogram limit of detection
- ◆ Long light emission for 6 hours
- ◆ Primary antibody dilution 1:1000 -1:5000
- ◆ Secondary antibody dilution 1:20.000 – 1:100.000
- ◆ Detection can be done by film or CCD imaging equipment

Cat.No.	Size
42584.01	100 ml
42584.02	250 ml

**SERVALight Eos CL HRP WB Substrate Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Very highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.  
The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ Very high sensitivity, mid femtogram limit of detection
- ◆ Very long and steady light emission for 12 hours
- ◆ Primary antibody dilution 1:1000 -1:15.000
- ◆ Secondary antibody dilution 1:25.000 – 1:150.000
- ◆ Detection can be done by film or CCD imaging equipment

Cat.No.	Size
42585.02	250 ml

**SERVALight EosUltra CL HRP WB Substrate Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Ultrahigh sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.  
The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.  
SERVALight EosUltra substrate is optimized for maximum length of light emission and therefore ideal for detection by CCD imaging systems.

- ◆ Ultrahigh sensitivity, mid to low femtogram limit of detection
- ◆ Extremely long light emission at a very high signal level for 18 hours
- ◆ Primary antibody dilution 1:5000 -1:50.000
- ◆ Secondary antibody dilution 1:50.000 – 1:250.000
- ◆ Detection can be done preferably by CCD imaging equipment or film

Cat.No.	Size
42586.01	20 ml
42586.02	100 ml

**SERVALight Helios CL HRP WB Substrate Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Extremely sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.  
The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.  
Due to the extremely high light output of the SERVALight Helios substrate very short exposure times or very high dilution of antibodies can be used. Especially when using film detection this is critical to receive optimal performance.

- ◆ Extreme sensitivity, low femtogram limit of detection
- ◆ Long light emission for 8 hours
- ◆ Primary antibody dilution 1:5000 -1:100.000
- ◆ Secondary antibody dilution 1:100.000 – 1:500.000
- ◆ Detection can be done preferably by CCD imaging equipment or film

Cat.No.	Size
42587.01	20 ml
42587.02	100 ml
42587.03	200 ml

**SERVALight Vega CL HRP WB Substrate Kit**

HS 38220000  
Storage temperature +2 °C to +8 °C

Highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin. The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ High sensitivity, mid picogram limit of detection
- ◆ Directly compatible with protocols of standard ECL WB substrates of other vendors
- ◆ Low background, high signal/noise ratio
- ◆ Working solution is stable for minimum 5 days – reproducible results, less waste
- ◆ Primary antibody dilution 1:100 -1:5000
- ◆ Secondary antibody dilution 1:1000 – 1:15.000
- ◆ Detection can be done by film or CCD imaging equipment

Cat.No.	Size
42588.02	250 ml
42588.03	500 ml

### ■ SERVALight PreMix Vega CL HRP WB Substrate

HS 38220000  
Storage temperature +15 °C to +30 °C

SERVALight PreMix chemiluminescent horseradish peroxidase (HRP) substrates are ready-to-use solutions for convenient and fast detection of proteins in Western Blotting. The pre-mixed solutions save time and increase consistency in your results, avoiding pipetting errors and possible contaminations. SERVALight PreMix Vega is an entry-level HRP Western Blot substrate, ideal for routine analysis. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ High sensitivity, mid picogram limit of detection
- ◆ No mixing, ready-to-use at room temperature
- ◆ Low background, high signal/noise ratio
- ◆ Primary antibody dilution 1:100 -1:5000
- ◆ Secondary antibody dilution 1:1000 – 1:15,000
- ◆ Signal duration 3 hours

Cat.No.	Size
42655.01	250 ml

### ■ SERVALight PreMix Eos CL HRP Substrate

HS 38220000  
Storage temperature +15 °C to +30 °C

SERVALight PreMix chemiluminescent horseradish peroxidase (HRP) substrates are ready-to-use solutions for convenient and fast detection of proteins in Western Blotting. The pre-mixed solutions save time and increase consistency in your results, avoiding pipetting errors and possible contaminations. SERVALight PreMix Eos is a versatile HRP Western Blot substrate. Its high signal intensity combined with a broad linear dynamic range allows an accurate quantification of both low and high abundance proteins on the same Western Blot. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ Very high sensitivity, mid femtogram limit of detection
- ◆ No mixing, ready-to-use at room temperature
- ◆ Low background, high signal/noise ratio
- ◆ Primary antibody dilution 1:1000 -1:15,000
- ◆ Secondary antibody dilution 1:25,000 – 1:150,000
- ◆ Signal duration 4 hours

Cat.No.	Size
42656.01	250 ml

### ■ SERVALight PreMix Helios CL HRP WB Substrate

HS 38220000  
Storage temperature +15 °C to +30 °C

SERVALight PreMix chemiluminescent horseradish peroxidase (HRP) substrates are ready-to-use solutions for convenient and fast detection of proteins in Western Blotting. The pre-mixed solutions save time and increase consistency in your results, avoiding pipetting errors and possible contaminations. SERVALight PreMix Helios is an extremely sensitive HRP Western Blot substrate with excellent signal intensity, which enables to detect very low amounts of proteins reducing the needed quantity of antibodies. 0.1 ml substrate is sufficient for one cm<sup>2</sup> membrane.

- ◆ Extreme sensitivity, low femtogram limit of detection
- ◆ No mixing, ready-to-use at room temperature
- ◆ Low background, high signal/noise ratio
- ◆ Primary antibody dilution 1:5000 -1:100,000
- ◆ Secondary antibody dilution 1:100,000 – 1:500,000
- ◆ Signal duration 2 hours

Cat.No.	Size
42657.01	250 ml

### ■ SERVALYT™ 2-4

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42902.01	10 ml
42902.02	25 ml

### ■ SERVALYT™ 2-9 Seed-Mix

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special quality for seed analysis by IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42935.01	10 ml
42935.02	25 ml
42935.03	100 ml

### ■ SERVALYT™ 2-11

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42900.01	10 ml
42900.02	25 ml

### ■ SERVALYT™ 3-4

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42922.01	10 ml
42922.02	25 ml

### ■ SERVALYT™ 3-5

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42903.04	2 ml
42903.01	10 ml
42903.02	25 ml

### ■ SERVALYT™ 3-6

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42944.04	2 ml
42944.01	10 ml
42944.02	25 ml

### ■ SERVALYT™ 3-7

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42945.01	10 ml
42945.02	25 ml



**SERVALYT™ 3-10**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42940.04	2 ml
42940.01	10 ml
42940.02	25 ml

**SERVALYT™ 3-10 Iso-Dalt, for 2D Electrophoresis**

HS 38220000  
Storage temperature +2 °C to +8 °C

Iso-Dalt quality; special 2D grade to be used in 2D electrophoresis.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42951.04	2 ml
42951.01	10 ml
42951.02	25 ml

**SERVALYT™ 4-5**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42923.01	10 ml
42923.02	25 ml

**SERVALYT™ 4-6**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42904.04	2 ml
42904.01	10 ml
42904.02	25 ml

**SERVALYT™ 4-7**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42948.04	2 ml
42948.01	10 ml
42948.02	25 ml

**SERVALYT™ 4.2-4.9**

HS 38220000  
Storage temperature +2 °C to +8 °C

Besides general use in IEF suitable for phenotyping of alpha-1-antitrypsin by hybrid IEF. This is used for diagnosis of alpha-1-antitrypsin deficiency.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42926.01	10 ml
42926.02	25 ml

**SERVALYT™ 4-9 T**

HS 38220000  
Storage temperature +2 °C to +8 °C

Technical grade quality for preparative work. Formation of solid particle (quart. ammonium salts) can be found over time of storage at low temperature. This will not affect the separation as precipitate will dissolve upon dilution (working solution) or warming up to room temperature.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42910.01	10 ml
42910.02	25 ml
42910.03	100 ml

**SERVALYT™ 5-6**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42924.01	10 ml
42924.02	25 ml

**SERVALYT™ 5-7**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42905.04	2 ml
42905.01	10 ml
42905.02	25 ml

**SERVALYT™ 5-8**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42949.04	2 ml
42949.01	10 ml
42949.02	25 ml

**SERVALYT™ 5-9**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42950.01	10 ml
42950.02	25 ml

**SERVALYT™ 6-7**

HS 38220000  
Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42925.01	10 ml
42925.02	25 ml

### ■ SERVALYT™ 6-8

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42906.04	2 ml
42906.01	10 ml
42906.02	25 ml

### ■ SERVALYT™ 6-9

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42913.04	2 ml
42913.01	10 ml
42913.02	25 ml

### ■ SERVALYT™ 7-9

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42907.04	2 ml
42907.01	10 ml
42907.02	25 ml

### ■ SERVALYT™ 8-10

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42911.01	10 ml
42911.02	25 ml

### ■ SERVALYT™ 9-11

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT is a trademark of SERVA.

Cat.No.	Size
42909.01	10 ml
42909.02	25 ml

### ■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

(Precast Gels for IEF; PRECOTES™)



DANGER

H340-H350 † HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42965.03	5 gels

### ■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 † HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.

Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42967.02	5 gels

### ■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 † HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42866.02	5 gels

### ■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 † HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 245 x 125 mm.

Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42867.02	5 gels

**SERVALYT™ PRECOTES™ Range pH 3-6**



DANGER  
H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42974.02	5 gels

**SERVALYT™ PRECOTES™ Range pH 3-6**



DANGER  
H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42919.03	5 gels

**SERVALYT™ PRECOTES™ Range pH 3-6**



DANGER  
H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42874.02	5 gels

**SERVALYT™ PRECOTES™ Range pH 4-6**



DANGER  
H340-H350-H361F ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42875.02	5 gels

**SERVALYT™ PRECOTES™ Range pH 6-9**



DANGER  
H340-H350-H361F ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42978.02	5 gels

**SERVALYT™ PRECOTES™ Range pH 6-9**



DANGER  
H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.  
Horizontal precast polyacrylamide gels for IEF. The ultra-thin layer guarantees short focusing and staining/destaining times with high resolution and band sharpness. Gels are cast on a stable, inert polyester support film. Therefore they are despite the thin layer easy to handle and protected against mechanical damages like e. g. ripping of the gel matrix. The thin cover sheet (GEL-FIX™ for covers) prevents the surface from drying out and damages.

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42878.02	5 gels

**SERVALYT™ PRECOTES™ CSF Kit**



DANGER  
H340-H350 ♦ HS 38220000  
Storage temperature +2 °C to +8 °C

For cerebrospinal fluid (CSF) analysis by isoelectric focusing.  
The kit contains:

- ♦ 5 SERVALYT™ PRECOTES™ CSF gels 245 x 125 mm, 300 µm
- ♦ Anode and cathode buffer solutions
- ♦ Applicator strips and electrode wicks
- ♦ Optimized protocol for silver staining

SERVALYT PRECOTES is a trademark of SERVA.

Cat.No.	Size
42800.01	1 kit

**SERVALYT™ PreNets™ pH 3-10**

(PreNets™)  
HS 38220000  
Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.  
SERVALYT™ PreNets™ for subsequent blotting. They are precast gels, used in the same manner as the related SERVALYT™ PRECOTES™ except that the gel, supported by a NetFix™ polyester fabric, is permeable for electrotransfer. The gel layer is not covalently bound to the backing and is lifted off easily.

SERVALYT PreNets is a trademark of SERVA.

Cat.No.	Size
42738.02	5 gels

**SERVAPOR® Closure, 45 mm**

HS 39173200

Made from polyamide. Specifically designed for leak-free soaking of dialysis membranes. Do not float, autoclavable.

Cat.No.	Size
44608.01	10 pieces

### ■ SERVAPOR® Closure, 65 mm

HS 39173200

Made from polyamide. Specifically designed for leak-free soaking of dialysis membranes. Do not float, autoclavable.

Cat.No.	Size
44609.01	10 pieces

### ■ SERVAPOR® Closure, 110 mm

HS 39173200

Made from polyamide. Specifically designed for leak-free soaking of dialysis membranes. Do not float, autoclavable.

Cat.No.	Size
44610.01	10 pieces

### ■ SERVAPOR® 3 dialysis tubing, MWCO 3500

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44558.01	15 m
44558.02	30 m

### ■ SERVAPOR® 3 dialysis tubing, MWCO 3500

RC, diameter 28 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	44 mm
Nominal dry diameter	28 mm
Approx. filling volume	6.2 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44559.01	15 m
44559.02	30 m

### ■ SERVAPOR® 3 dialysis tubing, MWCO 3500

RC, diameter 35 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	55 mm
Nominal dry diameter	35 mm
Approx. filling volume	9.6 ml/cm
Nominal dry wall thickness	25 µm

Cat.No.	Size
44560.01	15 m

### ■ SERVAPOR® 6 dialysis tubing, MWCO 6000 - 8000

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44561.02	30 m

### ■ SERVAPOR® 6 dialysis tubing, MWCO 6000 - 8000

RC, diameter 22 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.8 ml/cm
Nominal dry wall thickness	23 µm

Cat.No.	Size
44562.02	30 m

### ■ SERVAPOR® 6 dialysis tubing, MWCO 6000 - 8000

RC, diameter 28 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C. Delivered with a pair free of charge dialysis membrane closures and manual.

Nominal dry flat width	44 mm
Nominal dry diameter	28 mm
Approx. filling volume	6.2 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44563.02	30 m

### ■ SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 6 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter	approx. 25 Å
Nominal dry flat width	10 mm
Nominal dry diameter	6 mm
Approx. filling volume	0.3 ml/cm
Nominal dry wall thickness	50 µm

Cat.No.	Size
44139.01	5 m
44139.02	25 m

■ **SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter	approx. 25 Å
Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44145.01	5 m
44145.04	25 m

■ **SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 21 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter	approx. 25 Å
Nominal dry flat width	34 mm
Nominal dry diameter	21 mm
Approx. filling volume	3.4 ml/cm
Nominal dry wall thickness	25 µm

Cat.No.	Size
44144.01	5 m
44144.02	25 m

■ **SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 29 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter	approx. 25 Å
Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.5 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size
44146.01	5 m
44146.04	25 m

■ **SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 50 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter	approx. 25 Å
Nominal dry flat width	80 mm
Nominal dry diameter	50 mm
Approx. filling volume	18.5 ml/cm
Nominal dry wall thickness	40 µm

Cat.No.	Size
44148.01	5 m
44148.02	25 m

■ **Sialidase, recombinant lyophilized**

(Neuraminidase, Exoglycosidase)

Mr 85.000

Storage Temperature: +15 °C to +30 °C

Sialidases are a family of exoglycosidases that catalyze the cleavage of non-reducing sialic acid residues of mono- or oligosaccharide chains on glycoconjugates. SERVA Sialidase, a recombinant glycosidase from *Arthrobacter ureafaciens*, cleaves α2,3-, α2,6- and α2,8- linked sialic acids. Because of its broad substrate specificity, Sialidase is capable of completely removing sialic acids from glycoconjugates of a wide variety of biological materials (cells, antibodies, serum, tissues etc.).

Especially designed and tested for mass spectrometry imaging and HPLC/UPLC

Contains a His-tag for easy removal by affinity chromatography

Because the enzyme is lyophilized, there is no need for refrigerated transport and storage is at room temperature. Concentration after reconstitution: 50 u/ µl in 100 µl H<sub>2</sub>O dest.

**Unit definition:** Denatured alpha-1-antitrypsin (A1AT) (10µg) is incubated with 1 µL of reconstituted Sialidase for 60 minutes at 37 °C and then analyzed by SDS-PAGE and analysis with the sialic acid binding Sambucus nigra lectin (SNA).

Cat.No.	Size
36409.01	100 µl

■ **Silicone anti-foam emulsion, 30 % USP**

(30 % Simethicone)

HS 39100000

Dow Corning® 30 % polydimethylsiloxane in water; contains traces of emulsifiers derived from plant.

Cat.No.	Size
35119.01	100 ml
35119.02	500 ml

■ **Silicone DC 200 fluid; 10 cst pract.**

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).

In terms of SI-units: 1 cSt = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>

Density (25 °C) 0.934 - 0.940

Cat.No.	Size
35132.01	500 g

■ **Silicone DC 200 fluid; 50 cst pract.**

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).

In terms of SI-units: 1 cst = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>

Density (25 °C) 0.957 - 0.963

Cat.No.	Size
35134.01	500 g

■ **Silicone DC 200 fluid; 100 cst pract.**

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).

In terms of SI-units: 1 cst = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>

Density (25 °C) 0.962 - 0.968

Cat.No.	Size
35135.01	500 g

■ **Silicone DC 200 fluid; 350 cst pract.**

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).

In terms of SI-units: 1 cst = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>

Density (25 °C) 0.966 - 0.972

Cat.No.	Size
35136.01	500 g



### ■ Silicone DC 550 fluid; 115 cst pract.

CAS [63148-52-7]

WGK 1L ♦ HS 39100000

(Polyphenylmethyl-dimethylsiloxane)

In terms of SI-units: 1 cst = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>

(25 % Methyl-75 % phenylsilicone). Excellent thermostability; lubricant; for instrument sterilization.

Density (25 °C) 1.06 - 1.07

Cat.No.	Size
35145.01	500 g

### ■ Silicone DC 710 fluid; 500 cst pract.

M<sub>r</sub> 2600 ♦ CAS [63148-58-3]

WGK 1L ♦ HS 39100000

(Phenylmethyl-dimethylsiloxane)

In terms of SI-units: 1 cst = 10<sup>-6</sup>m<sup>2</sup>s<sup>-1</sup>(50 % Methyl-50 % phenylsilicone). For GC, t<sub>max</sub> 225 °. Extremely stable at high temperatures.

Density (25 °C) 1.10 - 1.11

Cat.No.	Size
35149.04	1 kg

### ■ Silicone solution SERVA for silicizing glass and metal in isopropanol



DANGER

H225-H319-H336 ♦ GGVSE/ADR 3 II UN1219 ♦

IATA 3 II UN1219 ♦ WGK 1 ♦ HS 39100000

Suitable for silicizing UV quartz cuvettes.

## References:

1. J. Biol. Chem. (1995), 270 (52), 30927-32

Cat.No.	Size
35130.01	100 ml
35130.03	250 ml
35130.02	1 L

### ■ Silver nitrate analytical grade

AgNO<sub>3</sub> ♦ M<sub>r</sub> 169.89 ♦ CAS [7761-88-8]

DANGER

H272-H314-H400-H410 ♦ MAK/TRK 0,01E ♦ EG-

Index 047-001-00-2 ♦ GGVSE/ADR 5.1 II UN1493

IATA 5.1 II UN1493 ♦ EINECS 231-853-9 ♦ WGK 3L ♦ HS 28342980

Assay

min. 99.9 %

Cat.No.	Size
35110.01	25 g
35110.02	100 g

### ■ SingleQuant Assay Kit



DANGER

H225-H314 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Single tube format assay kit for protein quantification. The assay bases on the precipitation of proteins as insoluble dye complexes with acidic, ethanolic amido black 10B solution (1,2). After precipitation the protein-dye complexes are spinned down. The pellet is washed and resolubilized. The thereby released dye amount is measured at 624 nm.

- ♦ Precise, reproducible, reliable assay data
- ♦ Completed in only 45 min.
- ♦ No interference with detergents or reducing agents
- ♦ Detection range starts as low as 2 µg protein.

## References:

1. Schaffner W., Weissmann C. (1973) Anal. Biochem. **65**: 502-514.2. Popov N., Schmitt M., Schulzeck S., Matthies H. (1975) Acta Biol. Med. Ger. **34** (9): 1441-1446.

Cat.No.	Size
39226.01	200 tests

### ■ Skim Milk Powder for blotting

CAS [68514-61-4]

HS 04021011

Skim milk powder is used as a blocking reagent in immunological assays like Western Blotting or ELISA. It is as well suitable for blocking of nitrocellulose filters in cDNA cloning.

It is not suitable for biotin/streptavidin detection systems, because milk contains biotin.

Protein	32.0 - 40.0 %
Fat	max. 1.25 %
Lactose	45.0 - 56.0 %
pH (10 % in water)	6.4 - 6.7
Ash	max. 8.5
Water	max. 4.0 %

## References:

1. Johnson, D. A. et al. (1987) Gene Anal. Techn. **1**, 3 - 8

2. Harlow, E. &amp; Lane, D. (1988) Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size
42590.01	500 g
42590.02	1 kg
42590.03	5 kg

### □ Sodium-1-naphthyl hydrogen phosphate

see 30130 1-Naphthyl phosphate-Na-salt, page 75

### □ Sodium-L-(+)-ascorbate

see 14033 L-Ascorbic acid-Na-salt, page 13

### ■ Sodium acetate analytical grade

(Acetic acid-Na-salt)

C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>·Na ♦ M<sub>r</sub> 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1L ♦ HS 29152900

pKa 25 = 4.76

Assay (titr.) min. 98.5 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
21249.02	500 g

### ■ Sodium acetate buffer pH 5.2, solution 3M molecular biology grade

(Acetic acid-Na-salt)

C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>·Na ♦ M<sub>r</sub> 82.0 ♦ CAS [127-09-3]

HS 38220000

DNase/RNase not detected.

## Composition:

C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>·Na (cat. no. 39571) 246.0 g/l

Cat.No.	Size
39572.01	250 ml

### ■ Sodium azide research grade

NaN<sub>3</sub> ♦ M<sub>r</sub> 65.01 ♦ CAS [26628-22-8]

DANGER

H300-H410 ♦ MAK/TRK 0,2 mg/m<sup>3</sup> ♦ EG-

Index 011-004-00-7 ♦ GGVSE/ADR 6.1 II UN1687 ♦

IATA 6.1 II UN1687 ♦ EINECS 247-852-1 ♦ WGK 2L ♦ HS 28500060

Sodium azide is commonly used as a bacteriostatic preservative in biochemistry, molecular biology and cell biology.

It is also a metabolic inhibitor of oxidative phosphorylation

Assay (titr.) min. 99.0 %

Cat.No.	Size
30175.01	100 g
30175.03	250 g
30175.02	1 kg

**Sodium bicarbonate** research grade, Ph. Eur., USP

(Sodium hydrogen carbonate)  
 $\text{NaHCO}_3$  ♦ M, 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1 ♦ HS 28363000

Tested for use in tissue culture. Buffering substance.

Assay (titr.) 99.0 - 100.5 %  
 pH 5 % in water 7.9 - 8.4  
 Heavy metals (Pb) max. 5 ppm

Cat.No.	Size
30180.02	1 kg

**Sodium cacodylate**

see 15540 Cacodylic acid-Na-salt-3H<sub>2</sub>O, page 21

**Sodium carbonate** analytical grade, Ph. Eur.

$\text{Na}_2\text{CO}_3$  ♦ M, 106.0 ♦ CAS [497-19-8]



WARNING  
 H319 ♦ EG-Index 011-005-00-2 ♦ EINECS 207-838-8 ♦ WGK 1L ♦ HS 28362000

Component in coating buffers for immunoassays and may be used for the removal of peripheral membrane proteins.

Assay (titr.) 99.5 - 100.5 %  
 Heavy metals (Pb) max. 50 ppm

Cat.No.	Size
30181.02	1 kg

**Sodium chloride** cryst. research grade, Ph. Eur., USP

$\text{NaCl}$  ♦ M, 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

Assay (titr.) 99.0 - 100.5 %  
 Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size
30183.01	1 kg
30183.02	5 kg

**Sodium chloride** molecular biology grade

$\text{NaCl}$  ♦ M, 4 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

DNase/RNase not detected.

Assay (titr.) 99.0 - 100.5 %  
 Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size
39781.01	250 g
39781.02	1 kg

**Sodium cholate**

see 17126 Cholic acid-Na-salt, page 28

**Sodium deoxycholate**

see 18330 Deoxycholic acid-Na-salt, page 33

**Sodium dihydrogen phosphate-2H<sub>2</sub>O** research grade, Ph. Eur., USP

(Sodium phosphate monobasic (prim. sodium phosphate))  
 $\text{NaH}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$  ♦ M, 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size
30186.02	1 kg

**Sodium dodecyl sulfate**

see 20765 Dodecylsulfate-Na-salt in Pellets, page 37

**Sodium dodecyl sulfate**

see 20760 Dodecylsulfate-Na-salt, page 37

**Sodium hydrogen carbonate**

see 30180 Sodium bicarbonate, page 128

**di-Sodium hydrogen phosphate-2H<sub>2</sub>O**

research grade, Ph. Eur., USP

CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffer substance for biochemical, enzymatic and histochemical assays.

Assay (dried basis) 99.0 - 100.5 %  
 pH 1 % in water 9,0 - 9,6  
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
30201.01	500 g
30201.02	1 kg
30201.03	5 kg

**di-Sodium hydrogen phosphate-2H<sub>2</sub>O** analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

$\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$  ♦ M, 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sørensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.) min. 99.5 %  
 pH 5 % solution 9.0 - 9.2  
 Heavy metals (Pb) max. 10 ppm  
 Nitrogen (N) max. 10 ppm

Cat.No.	Size
30200.01	500 g
30200.03	1 kg

**Sodium laurylsulfate**

see 20765 Dodecylsulfate-Na-salt in Pellets, page 37

**Sodium laurylsulfate**

see 20760 Dodecylsulfate-Na-salt, page 37

**Sodium pyruvate**

see 15220 Pyruvic acid-Na-salt, page 95

**Sodium succinate**

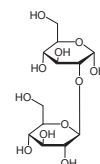
see 14972 Succinic acid-Na<sub>2</sub>-salt, page 134

**α-Sophorose** research grade

(2-O-β-D-Glucopyranosyl-α-D-glucose)  
 $\text{C}_{12}\text{H}_{22}\text{O}_{11} \cdot \text{H}_2\text{O}$  ♦ M, 360.3 ♦ CAS [20429-79-2]

WGK 1 ♦ HS 29400000

Disaccharide component of the microbial glycolipids produced by yeast termed sophorolipids. Sophorose has been identified as a potent inducer of cellulase gene expression in studies of *T. reesei* fermentation.



Assay (HPLC) min. 98.0 %

Cat.No.	Size
35208.01	50 mg

**D-Sorbitol** research grade

(Sorbit, Glucitol)

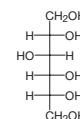
$\text{C}_6\text{H}_{14}\text{O}_6$  ♦ M, 182.2 ♦ CAS [50-70-4]

HS 29054499

Storage Temperature: +15 °C to +30 °C

For biochemistry, bacteriology and microbiology

Assay (HPLC) min. 98 %  
 MP 96 - 100 °C  
 Lead max. 10 ppm



Cat.No.	Size
35231.02	1 kg

### ■ Spacer Strips

HS 39269097

Silicone, size 265 x 7 x 0.5 mm, for forming the mould in capillary casting techniques.

Cat.No.	Size
42901.01	4 pieces

### ■ Spectinomycin-2HCl pentahydrate

(Actinospectacin; M 141)

 $C_{14}H_{24}N_2O_7 \cdot 2HCl \cdot 5H_2O$  ♦ M<sub>r</sub> 495.4 ♦ CAS [22189-32-8]


WARNING

H315-H319-H335 ♦ EINECS 244-554-3 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Cell culture tested.

Water-soluble aminoglycoside antibiotic from *Streptomyces* sp. (1,2).

Inhibitor of protein synthesis (3). Differs from other aminoglycoside derivatives in that it is bacteriostatic instead of bactericidal.

**Stock solution:** 10 mg/ml in distilled water, sterile filtered.

For molecular biology applications standard working concentration is 100 µg/ml and in cell culture 7.5 – 20 mg/l.

**References:**

1. Wagner J. G. et al. (1968) Int. Z. Klin. Pharmakol. Ther. Toxikol. **7**, 261 – 85
2. Wallace, B.J. et al. (1979) Antibiotics **5**, 272 – 303
3. Wallace, P.-C. et al. (1979) in Antibiotics, vol. **V**, part I. Mechanism of Action of Antibacterial Agents, Springer Verlag Berlin

Cat.No.	Size
35294.01	5 g

### ■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 6.4 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size
44170.01	15 m

### ■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 14.6 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	23 mm
Nominal dry diameter	14.6 mm
Approx. filling volume	1.7 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size
44171.01	30 m

### ■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 20.4 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	30 - 50 µm

**Note:**

The trial size of 5 m includes additionally one standard Spectra/Por® closure, one weighted Spectra/Por® closure and 5 opening picks.

Cat.No.	Size
44172.02	5 m
44172.01	30 m

### ■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 25.5 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	40 mm
Nominal dry diameter	25.5 mm
Approx. filling volume	5.1 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size
44173.01	30 m

### ■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 32 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	50 mm
Nominal dry diameter	32 mm
Approx. filling volume	7.9 ml/cm
Nominal dry wall thickness	30 - 50 µm

**Note:**

The trial size of 5 m includes additionally one standard Spectra/Por® closure, one weighted Spectra/Por® closure and 5 opening picks.

Cat.No.	Size
44174.02	5 m
44174.01	30 m

### ■ Spectra/Por® 3 dialysis tubing, MWCO 3500

RC diameter 11.5 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	25 - 30 µm

**Note:**

The trial size of 5 m includes additionally one standard Spectra/Por® closure, one weighted Spectra/Por® closure and 5 opening picks.

Cat.No.	Size
44183.02	5 m
44183.01	15 m

### ■ Spectra/Por® 3 dialysis tubing, MWCO 3500

RC, diameter 29 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	25 - 30 µm

Cat.No.	Size
44184.01	15 m

**Spectra/Por® 3 dialysis tubing, MWCO 3500**

RC, diameter 34 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	54 mm
Nominal dry diameter	34 mm
Approx. filling volume	9.3 ml/cm
Nominal dry wall thickness	25 - 30 µm

**Note:**

The trial size of 5 m includes additionally one standard Spectra/Por® closure, one weighted Spectra/Por® closure and 5 opening picks.

Cat.No.	Size
44185.02	5 m
44185.01	15 m

**Spectra/Por® 6 dialysis tubing, MWCO 1000**

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44192.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 1000**

RC, diameter 24 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	38 mm
Nominal dry diameter	24 mm
Approx. filling volume	4.6 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44193.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 1000**

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44194.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 2000**

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44196.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 2000**

RC, diameter 24 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	38 mm
Nominal dry diameter	24 mm
Approx. filling volume	4.6 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44197.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 2000**

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44198.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 3500**

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44199.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 3500**

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44200.01	10 m

**Spectra/Por® 6 dialysis tubing, MWCO 3500**

RC, diameter 34 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	54 mm
Nominal dry diameter	34 mm
Approx. filling volume	9.3 ml/cm
Nominal dry wall thickness	60 - 65 µm

Cat.No.	Size
44201.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44202.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44203.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44204.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44205.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44206.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 25.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	40 mm
Nominal dry diameter	25.5 mm
Approx. filling volume	5.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44207.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 32 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	50 mm
Nominal dry diameter	32 mm
Approx. filling volume	7.9 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44208.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44209.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44210.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44211.01	10 m



■ **Spectra/Por® 6 dialysis tubing, MWCO 10 000**

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 24 mm  
 Nominal dry diameter 15 mm  
 Approx. filling volume 1.8 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44212.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 10 000**

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 32 mm  
 Nominal dry diameter 20.4 mm  
 Approx. filling volume 3.3 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44213.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 10 000**

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 45 mm  
 Nominal dry diameter 29 mm  
 Approx. filling volume 6.4 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44214.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 15 000**

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 8 mm  
 Nominal dry diameter 5.1 mm  
 Approx. filling volume 0.20 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44215.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 15 000**

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 12 mm  
 Nominal dry diameter 7.5 mm  
 Approx. filling volume 0.45 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44216.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 15 000**

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 24 mm  
 Nominal dry diameter 15 mm  
 Approx. filling volume 1.8 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44218.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 15 000**

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 32 mm  
 Nominal dry diameter 20.4 mm  
 Approx. filling volume 3.3 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44219.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 15 000**

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 45 mm  
 Nominal dry diameter 29 mm  
 Approx. filling volume 6.4 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44220.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 25 000**

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 8 mm  
 Nominal dry diameter 5.1 mm  
 Approx. filling volume 0.20 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44221.01	10 m

■ **Spectra/Por® 6 dialysis tubing, MWCO 25 000**

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 12 mm  
 Nominal dry diameter 7.5 mm  
 Approx. filling volume 0.45 ml/cm  
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size
44222.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44223.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44224.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 18 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	28 mm
Nominal dry diameter	18 mm
Approx. filling volume	2.5 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44225.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 22 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.7 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44226.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44228.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 18 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	28 mm
Nominal dry diameter	18 mm
Approx. filling volume	2.5 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44229.01	10 m

### ■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 22 mm

HS 39173200

Pre-wetted (containing 0.05 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

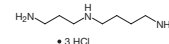
Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.7 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size
44230.01	10 m

### ■ Spermidine-3HCl research grade

(N-(3-Aminopropyl)-1,4-diaminobutane-3HCl)

$C_7H_{19}N_5 \cdot 3HCl$  ♦ M<sub>r</sub> 254.6 ♦ CAS [334-50-9]



WARNING

H315-H319-H335 ♦ EINECS 206-379-0 ♦ WGK 1 ♦ HS 29212900

Storage temperature +2 °C to +8 °C

Keep under argon.

Endogenous polyamine that inhibits neuronal nitric oxide synthase (nNOS). It binds and precipitates DNA and may be used to purify DNA binding proteins. Additionally, spermidine stimulates T4 polynucleotide kinase activity. It is involved in growth, development, and the stress response in plants.

Assay (titr.) min. 99.0 %

Cat.No.	Size
35285.02	5 g

### □ Spurr Embedding Medium

see 21041 Embedding Medium ERL-4221D, page 41

### ■ 20x SSC Buffer molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected. 20 x concentrated aqueous solution. Commonly used buffer in transfer, blocking and hybridization in both Northern and Southern Blotting.

**Composition:**

NaCl (cat. no. 39781)	175.32 g/L (3 M)
Na <sub>3</sub> -citrate x 2 H <sub>2</sub> O (cat. no. 38642)	88.23 g/L (0.3 M)

**References:**

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (pp. 7.46-7.47, 9.38-9.39, 9.50)
2. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), Suppl. 40, A.2.5

Cat.No.	Size
42555.01	1 L
42555.04	10 L

**Stabilizing Clamps, for HPE™-BH**

HS 90272000

Pair of connective clamps for HPE™-BlueHorizon multi-decks.

Cat.No.	Size
HPE-SC	2 pieces

**Stabilizing Feet, for HPE™-BH**

HS 90272000

Pair of stabilizing feet for HPE™-BlueHorizon multi-decks.

Cat.No.	Size
HPE-SF	2 pieces

**Starter Kit: 2 Mini A and 2 Mini G Plugs**

HS 38220000

The Mini Protein A & G spin column is the ideal tool for screening antibody expression and for small-scale purification of antibodies for solution-state immunoassays, immuno-histochemical and immuno-fluorescence studies, Western Blotting and immuno-precipitation studies. Antibodies are purified using a powerful, patented affinity spin column using a microfuge common to all biochemistry and immunology laboratories.

**Contents:**

Quantity: 2 x 0.23 Protein A Mini spin columns +  
2 x 0.23 Protein G Mini spin columns  
Max. sample volume per load: 0.65 ml, fixed angle rotor  
Collection tube: 2.2 ml microcentrifuge tubes  
Min. number of purifications: 12 purifications (3 uses per column)  
Typical capacity/preparation: 1 mg human IgG

Cat.No.	Size
42266.01	1 kit

**Steel Tray + Grid + Lid**

HS 90272000

Tray for cold and hot staining, 150 mm x 300 mm x 60 mm for all 125 mm x 260 mm gels.

Cat.No.	Size
HPE-A19	1 piece

**Steel Tray Large + Grid + Lid**

HS 90272000

For cold and hot staining, 220 mm x 280 mm x 60 mm for all large and DALT gels.

Cat.No.	Size
HPE-A20	1 piece

**Steel Tray Multi 6 for up to 6 large gels, with 6 grids**

HS 90272000

The MultiStainer is a stainless steel vessel with lid designed to stain up to six gels. The staining solution is stirred using a magnetic stir bar underneath the grid to ensure efficient mixing. The gels are positioned on stainless steel grids well separated from each other for simultaneously staining. Suitable for both cold and hot Coomassie® staining and for both backed and unbacked (slab) gels up to 20 cm x 26 cm in size.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
HPE-A21	1 piece

**Stem bromelain**

see 15250 Bromelain from pineapple stem ca. 0.5 DMC-U/mg, page 20

**Streptavidin agarose**

see 42178 SERVA Streptavidin Agarose Resin, page 113

**Streptavidin lyophil. salt-free**

M<sub>r</sub> ca. 60000 ♦ CAS [9013-20-1]

HS 35040090

Storage temperature -15 °C to -25 °C

Avidin from *Streptomyces avidinii*, isolated from fermentation filtrates by ion exchange chromatography.

**Unit definition:** one unit of streptavidin will bind 1 µg of biotin.

Free binding sites (per tetramer) min. 3  
Isoelectric point: 6.5 - 7.5

Cat.No.	Size
35490.02	5 mg

**Streptomyces griseus neutral proteinase**

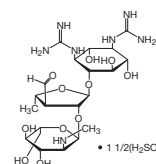
see 33635 Pronase E from *Streptomyces griseus* min. 5.0 DMC-U/mg, page 86

**Streptomycin sulfate research grade, Ph. Eur.**

C<sub>21</sub>H<sub>39</sub>N<sub>7</sub>O<sub>12</sub> · 1/2 H<sub>2</sub>SO<sub>4</sub> ♦ M<sub>r</sub> 728.7 ♦ CAS [3810-74-0]



**WARNING**  
H302-H361 ♦ EINECS 223-286-0 ♦  
WGK 2 ♦ HS 29412080



Min. 720 U/mg. Aminoglycoside antibiotic from *Streptomyces griseus*. Blocks the initiation complex and causes misreading on ribosomes in protein synthesis. Inhibits function only of the 30S subunit.

**References:**

- Zierhut, G. et al. (1979) Eur. J. Biochem. **98**, 577-83
- Wallace, B.J. et al. (1979) in Antibiotics Vol. **V**, part C; Mechanism of Action of Antibacterial Agents, Springer, Berlin
- Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7

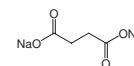
Cat.No.	Size
35500.01	10 g
35500.02	100 g

**Succinic acid-Na<sub>2</sub>-salt research grade**

(Sodium succinate)

C<sub>4</sub>H<sub>4</sub>O<sub>4</sub> · Na<sub>2</sub> · 6H<sub>2</sub>O ♦ M<sub>r</sub> 270.1 ♦ CAS [6106-21-4]

EINECS 205-778-7 ♦ WGK 1L ♦ HS 29171980



Used as a tricarboxylic acid cycle (Krebs cycle) supplement in cell culture applications. Additionally, it is used to study x-ray crystallography, protein structural analysis and proteomics.

Assay (titr., based on dried substance) min. 99.0 %

Cat.No.	Size
14972.02	500 g

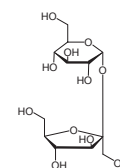
**Sucrose analytical grade**

(Saccharose; Cane sugar)

C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> ♦ M<sub>r</sub> 342.3 ♦ CAS [57-50-1]

EINECS 200-334-9 ♦ HS 29400000

Free of DNA, RNA, DNase and RNase. Special grade for biochemistry and density gradient centrifugation. Tested for use in tissue culture.



Assay (HPLC) min. 99.0 %  
[α]<sub>D</sub> 20 °/D (c=20 % in water) +66 ± 1 °

A 1 cm/50 % in water  
260 nm max. 0.25  
280 nm max. 0.2  
Iron (Fe) max. 0.5 ppm  
Heavy metals (Pb) max. 0.1 ppm

**References:**

- Fraenkel-Conrat, H. & Singer, B. (1962) Biochemistry **1**, 120-8 (p. 127)

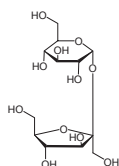
Cat.No.	Size
35579.02	500 g
35579.03	5 kg

### Sucrose research grade

(Saccharose; Cane sugar)  
 $C_{12}H_{22}O_{11}$  ♦ M<sub>r</sub> 342.3 ♦ CAS [57-50-1]  
 EINECS 200-334-9 ♦ HS 29400000

For gradient centrifugation, bacteriology and electrophoresis.

Assay (HPLC) min. 98.0 %  
 A 1 cm/50 % in water  
 260 nm max. 0.3  
 280 nm max. 0.25  
 Heavy metals (Pb) max. 1 ppm



Cat.No.	Size
35580.02	1 kg
35580.03	5 kg

### Sulforhodamine B Cytotoxicity Assay

HS 38220000

The Sulforhodamine B (SRB) Cytotoxicity Assay, developed in 1990, remains one of the most widely used methods for *in vitro* cytotoxicity screening. It relies on the ability of SRB to bind to protein components of cells fixed to tissue culture plates. SRB is a bright-pink aminoxanthene dye with two sulfonic groups that bind to basic amino acid residues under mild acidic conditions and dissociate under basic conditions. As the binding of SRB is stoichiometric, the amount of dye extracted from stained cells is directly proportional to the cell mass.

The fixed dye is solubilized and is measured photometrically at OD 540 nm with a reference filter of 690 nm. The OD values correlate with total protein content and therefore with cell number.

The assay is sensitive, simple, reproducible and more rapid with better linearity than the formazan-based assays. It has a good signal-to-noise ratio and has a stable end-point that does not require a time-sensitive measurement, as do the MTT or XTT assays.

**Content:** 0.4 g Sulforhodamine dye, 2x 50 ml Fixative Reagent, 2x 50 ml 10x Dye Wash Solution, 4x 50 ml SRB Solubilization Buffer

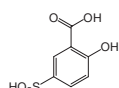
Cat.No.	Size
39906.01	1 kit

### 5-Sulfosalicylic acid analytical grade

(2-Hydroxy-5-sulfobenzoic acid)  
 $C_7H_6O_6 \cdot S \cdot 2H_2O$  ♦ M<sub>r</sub> 254.23 ♦ CAS [5965-83-3]



**DANGER**  
 H302-H314 ♦ GG/VE/ADR 8 III UN2585  
 ♦ IATA 8 III UN2585 ♦ EINECS 202-555-6 ♦ WGK 2 ♦



HS 29182900

Ideal fixative in microscopy and histology, because compatible with all downstream staining procedures.

Further, it can be used as a metal scavenger due to its strong association with a range of metals. Proteins are precipitated upon complexation with 5-sulfosalicylic acid, allowing the removal of proteins prior to e.g. chromatographic analysis.

Assay min. 99.0 %

Cat.No.	Size
35706.01	100 g

### Super Co-NTA Agarose Resin

HS 38220000

Super Cobalt NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Cobalt ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 10 mg/ml determined from *E. coli* cleared lysate). Other metal ions such as Ni<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities. If required, the cobalt ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

#### Specifications

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 30 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 1 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 14  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42320.01	10 ml

### Super Co-NTA Agarose Resin

HS 38220000

Super Cobalt NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Cobalt ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 10 mg/ml determined from *E. coli* cleared lysate). Other metal ions such as Ni<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities. If required, the cobalt ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

#### Specifications

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 30 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 1 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 14  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42321.01	25 ml

**Super Co-NTA Agarose Resin**

HS 38220000

Super Cobalt NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Cobalt ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 10 mg/ml determined from *E.coli* cleared lysate). Other metal ions such as Ni<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities. If required, the cobalt ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

**Specifications**

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 30 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 1 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 4  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42322.01	100 ml

**Super Ni-NTA Agarose Resin**

HS 38220000

Super Nickel NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Nickel ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 70 mg/ml determined from *E. coli* cleared lysate). Other metal ions such as Co<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities.

If required, the nickel ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

**Specifications**

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 70 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 2 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 14  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42317.01	10 ml

**Super Ni-NTA Agarose Resin**

HS 38220000

Super Nickel NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Nickel ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA-coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 70 mg/ml determined from *E.coli* cleared lysate). Other metal ions such as Co<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities.

If required, the Nickel ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

**Specifications**

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 70 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 2 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 14  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42318.01	25 ml

**Super Ni-NTA Agarose Resin**

HS 38220000

Super Nickel NTA Affinity Resin designed for affinity purification of polyhistidine tagged proteins. Nickel ions are carefully loaded onto a 7.5 % cross-linked agarose matrix (medium particle diameter 40 µm) via a NTA coupled ligand to obtain a stable affinity matrix with the highest binding capacity for histidine residues (up to 70 mg/ml determined from *E.coli* cleared lysate). Other metal ions such as Co<sup>2+</sup>, Zn<sup>2+</sup>, Fe<sup>3+</sup>, and Al<sup>3+</sup> can also be used resulting in different affinities.

If required, the nickel ions can be removed from the agarose matrix using 5 wash steps with 100 mM EDTA, and the matrix recharged with a different metal ion.

**Specifications**

Specificity: Polyhistidine tag  
 Matrix: 7.5 % cross- linked agarose  
 Coupled ligand: Nitrilotriacetic acid (NTA)  
 Binding capacity: 70 mg/ml  
 Bead size: 32 – 60 µm (40 µm medium)  
 Flow rate: 0.25 – 2 ml/min (optimum), 6 ml/min (max.)  
 Maximum pressure: 72 psi  
 Buffer compatibility: Common aqueous buffers from pH 2 - 14  
 Cleaning buffer examples: 100 % methanol, 100 % ethanol, 8 M urea, 6 M guanidinium hydrochloride, 30 % (v/v) acetonitrile  
 Shipping/delivery: 50 % (v/v) resin suspension in 20 % ethanol at ambient temperature  
 Storage: Equilibration buffer at 2 - 8 °C (short-term) 20 % ethanol at 2 - 8 °C (long-term)

Cat.No.	Size
42319.01	100 ml

**Synperonic® F108 pract.**

M<sub>n</sub> ca. 14000 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polypropylene glycol (M<sub>n</sub> ca. 3 250): poly(ethylene glycol) ca. 1:4. MP 55 - 60 °C. Strongly hydrophilic (HLB ca. 27). More than 10 % soluble in water.

Synperonic = Registered trademark of ICI

Cat.No.	Size
35726.01	100 g
35726.02	1 kg



### ■ Synperonic® F68 pract.

M<sub>n</sub> ca. 8300 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polyol detergent, block-copolymer. Pluronic™ PE 6800. Poloxamer 188. Poly(propylene glycol) (M<sub>n</sub> ca. 1 750): polyethylene glycol ca. 1:4. MP ca. 55 °C.

Strongly hydrophilic detergent (HLB approx. 29). More than 10 % soluble in water, forms foams moderately. Used in cell culture to protect microorganisms, animal and plant cells against mechanical damage.

Synperonic = trademark of ICI, Pluronic = trademark of BASF AG

#### References:

1. Bentley, P.K. et al. (1989) Biotechnol. Lett. **11**, 111-4
2. King, A.T. et al. (1990) Biotechnol. Lett. **12**, 29-32
3. Murhammer, D.W. & Goochee, C.F. (1990) Biotechnol. Prog. **6**, 142-8

Cat.No.	Size
35724.01	100 g
35724.02	1 kg

### ■ TAE Buffer (10x) molecular biology grade



WARNING

H315-H319 ♦ WGK 2 ♦ HS 38220000

10 x concentrated aqueous solution.

TAE Buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

Tris (cat. no. 37180) 48.46 g/L (0.4 M)  
EDTA-Na<sub>2</sub>-salt (cat. no. 11280) 3.72 g/L (0.01 M)  
Acetic acid (cat. no. 45633) 12.01 g/L (0.2 M)

#### References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size
42553.01	1 L
42553.04	10 L

### ■ TAE Buffer (50x) molecular biology grade



WARNING

H315-H319 ♦ WGK 2 ♦ HS 38220000

50x concentrated aqueous solution.

DNase/RNase not detected. TAE Buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear dsDNA tends to run faster in TAE than in TBE.

Tris (cat. no. 37180) 242.3 g/L  
EDTA-Na<sub>2</sub>-salt (cat. no. 11280) 18.6 g/L  
Acetic acid (cat. no. 45633) 60.05 g/L

Cat.No.	Size
42549.01	1 L

### ■ TBE Buffer (10x)



DANGER

H315-H319-H360DF ♦ WGK 1 ♦ HS 38220000

10 x concentrated aqueous solution.

TBE Buffer is widely used for the electrophoresis of nucleic acids and has a higher buffer capacity than TAE. It can be used for DNA and RNA polyacrylamide and agarose gel electrophoresis.

#### Composition:

Tris (cat. no. 37180) 107.78 g/L (0.89 M)  
EDTA-Na<sub>2</sub>-salt (cat. no. 11280) 7.44 g/L (0.02 M)  
Boric acid (cat. no. 15165) 55.0 g/L (0.89 M)

#### References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size
42557.01	2 x 500 ml

### ■ TBE Buffer (10x) molecular biology grade



DANGER

H315-H319-H360DF ♦ HS 38220000

10 x concentrated aqueous solution.

TBE Buffer is widely used for the electrophoresis of nucleic acids and has a higher buffer capacity than TAE. It can be used for DNA and RNA polyacrylamide and agarose gel electrophoresis.

Tris (cat. no. 37186) 107.78 g/l (0.89 M)  
EDTA-Na<sub>2</sub>-salt (cat. no. 39760) 7.44 g/l (0.02 M)  
Boric acid (cat. no. 15165) 55.0 g/L (0.89 M)

#### References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size
39320.01	2,5 L

### ■ TBS Buffer (10x) sterile

(Tris-Buffered Saline)

HS 38220000

10 x concentrated aqueous solution, autoclaved.

TBS Buffer is a widely used buffer in protein detection systems like Western Blot analysis, for immunocytological and immunohistological detection, *in situ* hybridization, apoptosis assays and staining of nuclei.

#### Composition:

NaCl (cat. no. 30183) 1.5 M  
KCl (cat. no. 26868) 30 mM  
Tris (cat. no. 37180) 250 mM  
pH 7.2 - 7.6

Cat.No.	Size
42596.01	1 L

### ■ TBST Buffer (10X) sterile

HS 38220000

10 x concentrated aqueous solution with 0.5 Tween 20, sterile filtered.

TBST Buffer is a widely used buffer in protein detection systems like Western Blot analysis, for immunocytological and immunohistological detection, *in situ* hybridization, apoptosis assays and staining of nuclei.

Cat.No.	Size
42598.01	1 L

### □ TCA analytical grade

see 36910 Trichloroacetic acid, page 140

### □ TCEP

see 36970 Tris-(2-carboxyethyl)phosphine hydrochloride, page 141

### ■ TE Buffer (100x)

HS 38220000

100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/L (1 M)  
EDTA-Na<sub>2</sub>-salt (cat. no. 11280) 37.22 g/L (0.1 M)  
pH 8.0 ± 0.2

Cat.No.	Size
42554.01	1 L

### ■ TE Buffer (100x) pH 8.0 molecular biology grade

WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/L (1 M)  
EDTA-Na<sub>2</sub>-salt (cat. no. 11280) 37.22 g/L (0.1 M)  
pH 8.0 ± 0.2

Cat.No.	Size
39799.01	100 ml

**Teepol 610 pract.**

(Lensodel PB; Neodol PB)



DANGER  
H315-H318 ♦ WGK 2 ♦ HS 34021190

32 % aqueous solution of sodium C9-C11 alkylethersulfates.

A dilution of 1:20 has pH 7.6. For determination of iron in serum (1). Teepol 710 originally used by the author is no longer available.

**References:**

1. Lauber, K. (1965) Z. Klin. Chem. 3, 96-9

Cat.No.	Size
35796.01	1 L
35796.02	5 L

**TEMED**

see 35930 N,N,N',N'-Tetramethyl-ethylenediamine, page 138

**TEMED**

see 35925 N,N,N',N'-Tetramethyl-ethylenediamine, page 138

**Tergitol™ 15-S-9**

HS: 34021300 ♦ CAS [68131-40-8] .

(Polyethylene glycol ether, sec-alcohol ethoxylate, sec-alcoxy polyethylene glycol)

CMC (25 °C) 52 ppm, HLB 13.3

Nonionic detergent, alternative to Triton X-100. Can be used for the isolation, purification and analysis of membrane components. Suitable for solubilization of hydrophobic proteins.

Tergitol = trademark of DOW Chemical company

Cat.No.	Size
37242.01	100 ml
37242.02	500 ml
37242.03	2,5 L

**Testosterone research grade, Ph. Eur.**

(4-Androsten-17β-ol-3-one; 17β-Hydroxy-4-androsten-3-one)



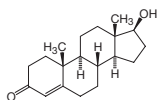
C<sub>19</sub>H<sub>28</sub>O<sub>2</sub> ♦ M<sub>r</sub> 288.4 ♦ CAS [58-22-0]



DANGER  
H302-H351-H360DF-H362 ♦

EINECS 200-370-5 ♦ HS 29372900

Assay (UV) 97.0 - 103.0 %



Cat.No.	Size
35800.02	5 g

**Testosterone propionate research grade**

C<sub>22</sub>H<sub>32</sub>O<sub>3</sub> ♦ M<sub>r</sub> 344.5 ♦ CAS [57-85-2]



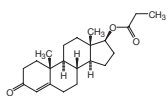
DANGER  
H302-H351-H360 ♦  
EINECS 200-351-1 ♦ WGK 2 ♦

HS 29372900

Storage temperature +2 °C to +8 °C

Testosterone propionate is the esterified form of testosterone intended for used in clinical applications.

Assay (UV) 97.0 - 103.0 %



Cat.No.	Size
35805.02	5 g

**Tetra-n-butylammonium-hydrogensulfate analytical grade**

C<sub>16</sub>H<sub>36</sub>N<sup>+</sup>HSO<sub>4</sub><sup>-</sup> ♦ M<sub>r</sub> 339.5 ♦ CAS [32503-27-8]



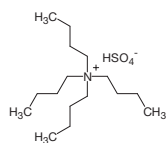
WARNING  
H315-H319 ♦ EINECS 251-068-5 ♦ WGK 2 ♦  
HS 29239000

For ion-pair reversed phase chromatography of ribonucleotides.

Assay (titr.) min. 98.0 %

**References:**

1. Hoffmann, N.E. & Liao, J.C. (1977) Anal. Chem. 49, 2231-4



Cat.No.	Size
35854.01	25 g

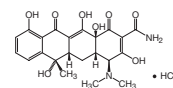
**Tetracycline-HCl research grade, USP**

(Achromycin-HCl)

C<sub>22</sub>H<sub>24</sub>N<sub>2</sub>O<sub>8</sub>·HCl ♦ M<sub>r</sub> 480.9 ♦ CAS [64-75-5]



WARNING  
H315-H319-H335-H361-H362 ♦  
EINECS 200-593-8 ♦ WGK 1 ♦ HS 29413000



Bacteriostatic antibiotic isolated from strains of *Streptomyces*, active against gram positive and gram negative bacteria and also against intracellular microorganisms like Rickettsia and mycoplasma. Inhibits bacterial protein synthesis by preventing aminoacyl-RNA binding to the A-side of the 30S ribosomal subunit. Sample analysis (1,2). Used for the selection of resistant clones (3,4).

Assay min. 900 µg/mg

**References:**

- Anderson, C.R. et al. (2005) J. Chromatogr. A 1075, 23-32
- Koesukwiwat, U. et al. (2007) . J. Chromatogr. A 1140, 147-56
- Guillaume, G. et al. (2000) FEMS Microbiol. Ecology 32, 77-85
- Call, D.R. et al. (2003) Antimicrob. Agents Chemother. 47, 3290-5
- Loflin, K.A. et al. (2005) Environ. Toxicol. Chem. 24, 782-8
- Munshi, T. et al. (2013) PLOS ONE 8(3): e60143

Cat.No.	Size
35866.01	10 g
35866.02	100 g

**N,N,N',N'-Tetramethyl-ethylenediamine for electrophoresis**

(TEMED; TD)

C<sub>6</sub>H<sub>16</sub>N<sub>2</sub> ♦ M<sub>r</sub> 116.21 ♦ CAS [110-18-9]



DANGER  
H225-H302-H314-H332 ♦ EG-Index 612-103-00-3  
♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦  
EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Filled under argon.

Used as an initiator along with ammonium persulfate for polymerization reactions. TEMED is responsible for the formation of free radicals from persulfate, thereby initiating the acrylamide polymerization process.

Tested as catalyst in polyacrylamide gel production.

Assay (NMR) min. 99.0 %

Cat.No.	Size
35930.01	10 ml
35930.02	25 ml

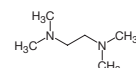
**N,N,N',N'-Tetramethyl-ethylenediamine**

(TEMED; TD)

C<sub>6</sub>H<sub>16</sub>N<sub>2</sub> ♦ M<sub>r</sub> 116.21 ♦ CAS [110-18-9]



DANGER  
H225-H302-H314-H332 ♦ EG-Index 612-103-00-3  
♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦  
EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900



Used as an initiator along with ammonium persulfate for polymerization reactions. TEMED is responsible for the formation of free radicals from persulfate, thereby initiating the acrylamide polymerization process.

Assay (NMR) min. 98.5 %

Cat.No.	Size
35925.01	100 ml
35925.02	500 ml

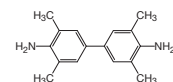
**3,3',5,5'-Tetramethylbenzidine research grade**

(TMB)

C<sub>16</sub>H<sub>20</sub>N<sub>2</sub> ♦ M<sub>r</sub> 240.4 ♦ CAS [54827-17-7]



WARNING  
H302-H341 ♦ EINECS 259-364-6 ♦  
WGK 2 ♦ HS 29215990



Substrate for horseradish peroxidase. More sensitive than ABTS and more stable and less toxic than diaminobenzidine. See also TMB Ready-To-Use ELISA Substrate (cat.no. 37068) and SERVAColor TMB Blot Solution (cat.no. 37071).

Assay (titr.) 98.0 - 102.0 %

Cat.No.	Size
35926.02	5 g
35926.03	25 g

**Tetrazolium Red**

see 37130 Triphenyltetrazolium chloride, page 140

### TEV Protease, recombinant

M<sub>r</sub> 28.000  
HS 35079090  
Storage Temperature: -15 °C to -25 °C

Recombinant TEV Protease is a highly site-specific cysteine protease, which is found in the Tobacco Etch Virus. Due to its sequence specificity, the enzyme is a very powerful reagent for removal of fusion tags from recombinant proteins after protein purification. The enzyme has been genetically modified to increase its activity and resistance to autolysis. It consists of the catalytic domain with an N-terminal polyhistidine tag. It recognizes a seven amino acid sequence of the general form Glu-X-X-Gln-Gly/Ser, most commonly Glu-Asn-Leu-Tyr-Phe-Gln-Gly, and cleaves between glutamine and glycine or serine. Using the polyhistidine tag at the N-terminus of the protease the enzyme can be easily removed from the cleavage reaction by affinity chromatography following digestion.

**Specific activity:** 10 U/μl

**Unit definition:** 1 μl cleaves >80 % of 50 μg control substrate in three hours at 30 °C.

Cat.No.	Size
36401.01	1.000 U

### THAM

see 37190 Tris(hydroxymethyl)aminomethane, page 142

### THAM

see 37181 Tris(hydroxymethyl)aminomethane, page 141

### Thiamine-HCl research grade, Ph. Eur.

(Aneurin; Thiaminium chloride-hydrochloride; Vitamin B<sub>1</sub> hydrochloride)

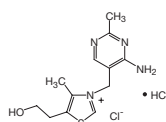
C<sub>12</sub>H<sub>17</sub>ClN<sub>4</sub>OS·HCl ♦ M<sub>r</sub> 337.3 ♦ CAS [67-03-8]

EINECS 200-641-8 ♦ WGK 1L ♦ HS 29362200

Storage temperature +2 °C to +8 °C

Assay, dried (titr.)

98.5 - 101.0 %



Cat.No.	Size
36020.02	100 g

### Thiazolyl blue

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium  
bromide, page 35

### Thimerosal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 43

### 2-Thiobarbituric acid analytical grade

(4,6-Dihydroxy-2-thiopyrimidine)

C<sub>4</sub>H<sub>4</sub>N<sub>2</sub>O<sub>2</sub>S ♦ M<sub>r</sub> 144.2 ♦ CAS [504-17-6]

EINECS 207-985-8 ♦ HS 29335400

Storage Temperature: +15 °C to +30 °C



Colorimetric reagent commonly used in the detection of malondialdehyde (MDA), a marker of lipid peroxidation. It forms a complex with MDA that can be quantified by colorimetric detection at 532 nm as a measure of lipid peroxidation.

Assay

min. 99.0 %

Cat.No.	Size
36108.01	10 g
36108.02	100 g

### Thioglycerol

see 28637 3-Mercapto-1,2-propanediol, page 70

### Thiomersal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 43

### threo-1,4-Dimercapto-2,3-butanediol

see 20711 Dithiothreitol, page 36

### L-Threonine research grade, Ph. Eur.

(Thr; L-2-Amino-3-hydroxybutyric acid)

C<sub>4</sub>H<sub>9</sub>NO<sub>3</sub> ♦ M<sub>r</sub> 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ WGK 1L ♦ HS 29224985

Assay (titr., dried)

99.0 - 101.0 %



Cat.No.	Size
36382.03	100 g

### Thrombin from bovine plasma min. 1000 units/mg protein lyophil.

(Coagulation Factor IIa)

EC 3.4.21.5 ♦ M<sub>r</sub> ca. 37 000 ♦ CAS [9002-04-4]



WARNING

H315-H319-H335 ♦ EINECS 232-648-7 ♦ WGK 1 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

Serine protease that activates factor XIII and converts fibrinogen to fibrin by selectively cleaving Arg-Gly bonds.

Suitable for removal of a tag, e.g. GST-tag, from a recombinant fusion protein containing an accessible thrombin recognition sequence.

**Unit definition:** 1 NIH unit clots a standard fibrinogen solution in 15 s at 37 °C (1).

**Extraneous activities:** very low fibrinolytic activity

**References:**

1. Baughman, D. J. (1970) *Methods Enzymol.* **19**, 145-57

Cat.No.	Size
36402.01	250 U
36402.02	1.000 U
36402.03	5.000 U

### TMB

see 35926 3,3',5,5'-Tetramethylbenzidine, page 138

### TMB Ready-To-Use ELISA Substrate

WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

One bottle reagent: contains 3,3',5,5'-tetramethylbenzidine, buffer and peroxide in a single convenient, ready-to-use solution recommended for the detection of horseradish peroxidase in ELISA assays. Develops a deep blue colour that turns bright yellow when the reaction is stopped. Light sensitive. Do not freeze.

Cat.No.	Size
37068.01	100 ml

### α-Toluenesulfonyl fluoride

see 32395 Phenylmethylsulfonyl fluoride, page 82

### Toluidine Blue O salt

(Basic Blue 17; 2-Amino-7-dimethylamino-3-methylphenothiazinium chloride)

C<sub>15</sub>H<sub>16</sub>N<sub>3</sub>S ♦ M<sub>r</sub> 305.8 ♦ CAS [92-31-9]

EINECS 202-146-2 ♦ WGK 2L ♦ HS 29349990

Methylhomologue of Azure A. For RNA staining and RNase detection in electrophoresis (1). Stain for oligodeoxyribonucleotides (2). Stain for acidic mucopolysaccharides (proteoglycans) (3) and RNA (4).

Water (KF)

max. 10.0 %

A 1 cm/0.001 % in water λ max.

min. 0.8

λmax. 0.001 % in water

622 - 638 nm

**References:**

1. Wilson, C.W. (1969) *Anal. Biochem.* **31**, 506-11
2. Elson, E. & Jovin, T.M. (1969) *Anal. Biochem.* **27**, 193-204
3. Rennert, O.M. (1967) *Nature* **213**, 1133
4. Konings R.N.H. & Bloemendal, H. (1965) *Eur. J. Biochem.* **7**, 165-73

Cat.No.	Size
36693.02	25 g

### Toluyene Red

see 30305 Neutral Red, page 76

**Towbin Buffer for Western Blotting 10x concentrate**

HS 38220000

Supplied as 10 x concentrate (0.25 M Tris and 1.92 M glycine in aqueous solution).

Working buffer: dilute 100 ml of 10x concentrate with 200 ml methanol and 700 ml distilled water.

Cat.No.	Size
42558.02	1 L

**TPNH**

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced ·Na<sub>4</sub>-salt, page 77

**Transferrin human (Apo) lyophil.**

(Siderophilin)  
M<sub>r</sub> ca. 77 000

HS 35040090

Storage temperature -15 °C to -25 °C

Iron-poor, iron (Fe) max. 0.003 %. Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Protein content min. 98.0 %

**References:**

1. Carver, F.J. & Frieden, E. (1978) *Biochemistry* **17**, 167-72

Cat.No.	Size
36760.01	50 mg

**Trasylo<sup>®</sup>**

see 13718 Aprotinin from bovine lung, page 13

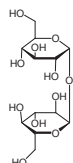
**D-Trehalose analytical grade**

(α-D-Glucopyranosyl-α-D-glucopyranoside)  
C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>·2H<sub>2</sub>O ♦ M<sub>r</sub> 378.3 ♦ CAS [6138-23-4]

EINECS 202-739-6 ♦ WGK 1 ♦ HS 29400000

Use as a cryoprotectant in a variety of cell freezing media.

Assay (HPLC) min. 99.0 %  
[α] 20 °C/D (c=7 % in water) +176 ° to +180 °



Cat.No.	Size
36770.02	25 g
36770.03	100 g

**Tricaine**

see 12396 3-Aminobenzoic acid ethyl ester-methanesulfonate, page 10

**Trichloroacetic acid analytical grade**

(TCA)

C<sub>2</sub>HCl<sub>3</sub>O<sub>2</sub> ♦ M<sub>r</sub> 163.4 ♦ CAS [76-03-9]



DANGER  
H314-H410 ♦ EG-Index 607-004-00-7 ♦ GGVSE/  
ADR 8 II UN1839 ♦ IATA 8 II UN1839 ♦ EINECS 200-927-2 ♦  
WGK 2L ♦ HS 29154000

Assay (titr.) min. 99.0 %

Cat.No.	Size
36910.01	100 g
36910.03	500 g

**Trichloroacetic acid, 20 % solution**

(TCA)

DANGER

H314-H335-H336-H412 ♦ GGVSE/ADR 8 III UN2564 ♦  
IATA 8 III UN2564 ♦ WGK 2S ♦ HS 38220000

Aqueous solution. TCA (cat. no. 36910): 200 g/L.

For protein precipitation from biological samples.

Suitable for fixation of native and IEF PAGE gels.

Cat.No.	Size
36913.02	1 L

**Trichloromethane**

see 39553 Chloroform, page 27

**Trichloromethane**

see 45627 Chloroform, page 27

**Tricine**

see 37196 Tris(hydroxymethyl)methylglycine, page 142

**Tricine**

see 37195 N-Tris(hydroxymethyl)methylglycine, page 142

**Trifluoroacetic acid for LC-MS**

C<sub>2</sub>HF<sub>3</sub>O<sub>2</sub> ♦ M<sub>r</sub> 114.02 ♦ CAS [76-05-1]



DANGER  
H314-H332-H412 ♦ GGVSE/ADR 8 I UN2699 ♦  
IATA 8 I UN2699 ♦ WGK 2L ♦ HS 29159070

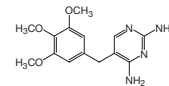
Additive for eluent phase for LC-MS.

Assay (acidimetric) min. 99.9 %  
Water (KF) max. 0.05 %  
Chloride max. 10 ppm  
Fluoride max. 50 ppm  
Sulphate max. 10 ppm

Cat.No.	Size
45641.01	50 ml
45641.02	10 x 1 ml

**Trimethoprim research grade, Ph. Eur.**

(5-(3,4,5-Trimethoxybenzyl)-2,4-diaminopyrimidine)  
C<sub>14</sub>H<sub>18</sub>N<sub>4</sub>O<sub>3</sub> ♦ M<sub>r</sub> 290.32 ♦ CAS [738-70-5]



DANGER  
H302-H360 ♦ EINECS 212-006-2 ♦  
WGK 2 ♦ HS 29335995

Storage temperature +2 °C to +8 °C

Antibacterial substance; activity *in vitro* (1). Simultaneous detection with sulfamethazine by HPLC (2). Inhibitor of the bacterial enzyme dihydrofolate reductase.

Assay (titr.) 98.5 - 101.0 %

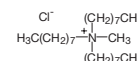
**References:**

1. Digranes, A. et al. (1985) *Chemotherapy* **31**, 466-71  
2. Torel, J. et al. (1985) *J. Chromatogr.* **323**, 447-50

Cat.No.	Size
37049.01	5 g

**Trioctylmethylammonium chloride pract.**

(Methyltrioctyl ammonium chloride; Adogen 464; Aliquat<sup>®</sup> 336)



C<sub>25</sub>H<sub>54</sub>ClN ♦ M<sub>r</sub> 404.2 ♦  
CAS [63393-96-4]

DANGER

H301-H315-H318-H410 ♦ GGVSE/ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810  
♦ EINECS 264-120-7 ♦ WGK 3S ♦ HS 29239000

Suitable for use as a phase transfer catalyst. It has a major application as a metal extraction reagent for cadmium, zinc, iron and rare earth metals.

Assay min. 85.0 %

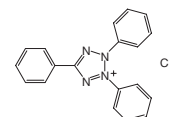
*Aliquat is a registered trademark of Cognis Corporation*

Cat.No.	Size
37076.02	500 ml

**Triphenyltetrazolium chloride analytical grade**

(TTC; Tetrazolium Red; 2,3,5-Triphenyl-2H-tetrazolium chloride)

C<sub>19</sub>H<sub>15</sub>ClN<sub>4</sub> ♦ M<sub>r</sub> 334.79 ♦ CAS [298-96-4]



WARNING  
H315-H319-H335 ♦ EINECS 206-071-6 ♦  
HS 29339980

Used in biochemistry to measure the activity of dehydrogenases and in vital staining to detect living cells through the reduction of the colourless, water-soluble tetrazolium dye to a deep red, water-insoluble formazan via the dehydrogenases of the respiratory chain. Furthermore, it can be used in microbiology to distinguish between coliform and noncoliform bacteria, to measure the bacterial content of liquids in food analysis and/or to determine seed vitality.

Purity (HPLC) min. 99.0 %

Cat.No.	Size
37130.03	10 g
37130.02	50 g

### TRIS

see 37190 Tris(hydroxymethyl)aminomethane, page 142

### Tris-(2-carboxyethyl)phosphine hydrochloride

(TCEP)

$C_9H_{16}ClO_6P$   $M_r$  286.7  $\diamond$  CAS [51805-45-9]



DANGER

H314  $\diamond$  GGVSE/ADR 8 II UN3261  $\diamond$  IATA 8 II UN3261  $\diamond$  WGK 1  $\diamond$  HS 29420000

Storage temperature +2 °C to +8 °C

Water-soluble and odorless reagent for selective and fast reduction of disulfides. Does not react with other functional groups of proteins. Unreactive towards many common alkylating reagents, so reductions have been carried out simultaneously with alkylations. More stable and effective than DTT. The strength of the phosphorus-oxygen bond makes the reaction irreversible. Dilute solutions of TCEP (1 mM) react rapidly at room temperature. Suitable also in mass spectrometry applications.

Assay (titr.) 98.0 – 102.0 %

#### References:

- Kirkley, T.L. (1989) Anal. Biochem. **180**, 231-36
- Burns, J.A. (1991) J. Org. Chem. **56**, 2648-50
- Han, J. a. Han, G.Y. (1994) Anal. Biochem. **220**, 5-10

Cat.No.	Size
36970.01	1 g
36970.02	5 g
36970.03	10 g

### Tris-Buffered Saline

see 42596 TBS Buffer (10x), page 137

### Tris-Glycine/SDS Sample Buffer

see 42527 SERVA Tris-Glycine/SDS Sample Buffer (2x), page 114

### Tris-Tricine/SDS Running Buffer

see 42552 SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x), page 114

### Tris Buffer pH 7.5, 1 M solution molecular biology grade

WGK 2  $\diamond$  HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

#### Composition:

Tris (cat. no. 37180) 121.14 g/l  
pH (20 °C, adjusted with HCl) 7.5  $\pm$  0.1

Cat.No.	Size
39791.01	1 L

### Tris Buffer pH 8.0, 1 M solution molecular biology grade

WGK 2  $\diamond$  HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

#### Composition:

Tris (cat. no. 37186) 121.14 g/l  
pH (20 °C, adjusted with HCl) 8.0  $\pm$  0.1

Cat.No.	Size
39792.01	1 L

### Tris Buffer pH 8.8, 1 M solution molecular biology grade

WGK 2  $\diamond$  HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

#### Composition:

Tris (cat. no. 37186) 121.14 g/l  
pH (20 °C, adjusted with HCl) 8.8  $\pm$  0.1

Cat.No.	Size
39794.01	1 L

### 2,4,6-Tris(dimethylaminomethyl)phenol pract.

(EPON accelerator DMP-30; ARALDITE® Accelerator DY 964)

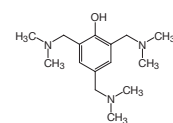
$C_{15}H_{27}N_3O$   $M_r$  265.4  $\diamond$  CAS [90-72-2]



WARNING

H302-H315-H319  $\diamond$  EG-Index 603-069-00-0  $\diamond$

EINECS 202-013-9  $\diamond$  WGK 1L  $\diamond$  HS 29215990



Accelerator for epoxy polymerization.

Curing catalyst for epoxy resins. It is used as the accelerator in glycid ether 100 embedding in electron microscopy.

Density (20 °C) 0.96 - 1.0

Cat.No.	Size
36975.01	100 ml
36975.03	250 ml

### Tris(hydroxymethyl)aminomethane electrophoresis grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$   $M_r$  121.1  $\diamond$  CAS [77-86-1]



WARNING

H315-H319  $\diamond$  EINECS 201-064-4  $\diamond$  HS 29221985

Ultrapure quality, tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.) min. 99.9 %

A 1 cm 10 % in water

235 nm max. 0.60

260 nm max. 0.15

280 nm max. 0.15

430 nm max. 0.07

Heavy metals (Pb) max. 1 ppm

pH (5 % in water) 10.0 - 11.5

Cat.No.	Size
37181.01	500 g
37181.02	1 kg
37181.03	2,5 kg

### Tris(hydroxymethyl)aminomethane analytical grade, USP

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxy-methyl)-1,3-propanediol)

$C_4H_{11}NO_3$   $M_r$  121.1  $\diamond$  CAS [77-86-1]



WARNING

H315-H319  $\diamond$  EINECS 201-064-4  $\diamond$  WGK 2L  $\diamond$  HS 29221985

Ultrapure buffer quality for biological and enzymatic research with very low UV absorption. As well suitable for pharmaceutical research.

Assay (titr.) min. 99.9 %

A 1 cm/10 % in water

235 nm max. 0.60

260 nm max. 0.15

280 nm max. 0.15

430 nm max. 0.07

Heavy metals (Pb) max. 10 ppm

pH (5 % in water) 10.0 - 11.5

Cat.No.	Size
37180.02	100 g
37180.03	500 g
37180.05	1 kg
37180.04	2,5 kg



**Tris(hydroxymethyl)aminomethane** molecular biology grade

(TRIS; THAM; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$  ♦  $M_r$  121.1 ♦ CAS [77-86-1]



WARNING  
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

Ultrapure buffer quality for sensitive assays in molecular biology with very low UV absorption, DNase, RNase, Protease not detected.

Assay (titr.)	min. 99.9 %
Heavy metals (Pb)	max. 10 ppm
Iron	max. 1 ppm
Arsenic (As)	max. 1 ppm
Magnesium (Mg)	max. 1 ppm

Cat.No.	Size
37186.02	500 g
37186.03	1 kg
37186.04	2,5 kg

**Tris(hydroxymethyl)aminomethane** research grade, USP

(TRIS; THAM; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$  ♦  $M_r$  121.1 ♦ CAS [77-86-1]



WARNING  
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985



Buffer substance for all standard applications, suitable for preparative purposes and for chromatography.

Assay (titr.)	min. 99.0 %
A 1 cm/40 % in water	
290 nm	max. 0.2
pH (5 % in water)	10.0 - 11.5
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size
37190.01	250 g
37190.02	1 kg
37190.03	5 kg

**Tris(hydroxymethyl)aminomethane-hydrochloride**

molecular biology grade

(Tris-hydrochloride)

$C_4H_{11}NO_3 \cdot HCl$  ♦  $M_r$  157.6 ♦ CAS [1185-53-1]



WARNING  
H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

Ultrapure buffer quality for molecular biology with low UV absorption, DNase, RNase, Protease not detected.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (as Pb)	max. 10 ppm
pH 10 % in water	3.5 - 5.0

Cat.No.	Size
39787.01	500 g

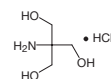
**Tris(hydroxymethyl)aminomethane-hydrochloride** research grade

(Tris-hydrochloride)

$C_4H_{11}NO_3 \cdot HCl$  ♦  $M_r$  157.6 ♦ CAS [1185-53-1]



WARNING  
H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985



Ultrapure buffer quality for biochemistry and enzymology with low UV absorption.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	3.5 - 5.0

Cat.No.	Size
37192.01	100 g
37192.02	500 g

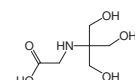
**N-Tris(hydroxymethyl)methylglycine** analytical grade

(Tricine)

$C_6H_{13}NO_5$  ♦  $M_r$  179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ WGK 1 ♦ HS 29225000

MP 179 - 187 °C; pKa 20 = 8.15. Buffering substance (1).  
Non-toxic substitute for barbital (2).



Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.04
280 nm	max. 0.02
pH 10 % in water	4.6 - 5.2
Heavy metals (Pb)	max. 5 ppm
Iron (Fe)	max. 5 ppm

**References:**

- Good, N.E. et al. (1966) *Biochemistry* **5**, 467-77
- Monthony, J.F. et al. (1978) *Clin. Chem.* **24**, 1825-7

Cat.No.	Size
37195.03	500 g

**Tris(hydroxymethyl)methylglycine** electrophoresis grade

(Tricine)

$C_6H_{13}NO_5$  ♦  $M_r$  179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ HS 29221985

In the Tricine gel system developed by Schaeffer and von Jagow (1), Tricine replaces glycine in the running buffer. This results in higher resolution of low molecular weight proteins and of smaller peptides.

Ultrapure quality, tested for use in electrode buffers for PAGE.

Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.04
280 nm	max. 0.02
Heavy metals (Pb)	max. 5 ppm
pH (10 % in water)	4.6 - 5.2

**References:**

- Schagger, H & von Jagow, G. V. (1987) *Anal. Biochem.* **166**, 368 - 379

Cat.No.	Size
37196.01	100 g
37196.02	500 g

**Trometamol**

see 37181 Tris(hydroxymethyl)aminomethane, page 141  
see 37180 Tris(hydroxymethyl)aminomethane, page 141

**Tromethamine**

see 37180 Tris(hydroxymethyl)aminomethane, page 141

**Tromethamine**

see 37181 Tris(hydroxymethyl)aminomethane, page 141

### ■ Trypsin 1:250 from porcine pancreas lyophil.

3.4.21.4 ♦ CAS [9002-07-7]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦  
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Serin protease mixture suitable for cell culture. Contains chymotrypsin and non-proteolytic activities. Trypsin 1:250 is a special blend of enzymes designed to maintain maximum cell viability during gentle dissociation. Customary concentration for use: 250 mg/100 ml, pH 7 – 8.

Trypsin assay: 250 NF/USP U/mg.

Cat.No.	Size
37292.02	100 g

### ■ Trypsin from porcine pancreas ca. 60 U/mg

2 x cryst. lyophil. salt-free

EC 3.4.21.4 ♦ M<sub>r</sub> ca. 24 000 ♦ CAS [9002-07-7]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦  
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Highly active enzyme preparation, e.g. suitable for assessing crystallization by membrane-based techniques, to determine protein folding rates.

**Unit definition:** 1 U catalyzes the hydrolysis of 1 µmole N-α-benzoyl-L-arginine ethyl ester (BAEE) per minute at 25 °C, pH 8.0.

**Extraneous activities:** max. 0.25 % chymotrypsin.

Cat.No.	Size
37291.03	1 g

### □ Trypsin inhibitor from bovine lung

see 13718 Aprotinin from bovine lung, page 13

### ■ Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.

M<sub>r</sub> ca. 22 000 ♦ CAS [9035-81-8]

EINECS 232-906-9 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Salt-free. Trypsin is inhibited in a molar ratio of 1:1. Inhibits as well chymotrypsin (2), plasmin, kallikrein, thrombin and other proteolytic enzymes.

**Unit definition:** 1 IU (inhibitor units) inhibits 1 U trypsin as defined by cleavage of 1 µmole BAEE (N-benzoyl-L-arginine ethyl ester) per minute.

#### References:

- Rachis, J.J. et al. (1962) Arch. Biochem. Biophys. **98**, 471-8
- Bidlingmeyer, U. et al. (1972) Biochemistry **11**, 3303-10

Cat.No.	Size
37329.01	250 mg

### ■ Trypsin MS approved, from porcine pancreas

EC 3.4.21.4 ♦ CAS [9002-07-7]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦  
EINECS 232-650-8 ♦ HS 35079090  
Storage temperature -15 °C to -25 °C

Trypsin MS approved is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues of trypsin results in a stable product that is extremely resistant to autolytic degradation. Trypsin MS approved is purified by chromatography. No chymotryptic activity is detectable. Every lot is approved for use in in-gel digestion and mass spectrometry analysis. Specificity verified by digestion of oxidized B-chain of insulin.

- ♦ Each lot is QC-tested by MS
- ♦ Modified by reductive methylation
- ♦ Source: Porcine pancreas
- ♦ Premium purity, superior stability

Cat.No.	Size
37286.04	4 x 25 µg
37286.01	100 µg
37286.02	150 µg
37286.03	1 mg

### ■ Trypsin Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M<sub>r</sub> ca. 24 000 ♦ CAS [9002-07-7]



DANGER  
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦  
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin Sequencing Grade, modified, is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues results in a stable product that is extremely resistant to autolytic degradation. Trypsin Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Cat.No.	Size
37283.01	4 x 25 µg
37283.02	100 µg
37283.03	1 mg

### ■ Tryptone from casein pancreatic

HS 35040090

Prepared by pancreatic digest of milk protein casein. Very rich source of amino nitrogen.

Used in the production of various general media such as Tryptone Water etc. and as well in the production of sterility testing media and various diagnostic media.

Total nitrogen (TN) 12.5 – 13.5 %  
Amino nitrogen (AN) 3.5 – 4.5 %  
AN/TN x 100 26 – 37  
pH (2 % solution) 6.5 – 7.5

Cat.No.	Size
48647.01	250 g
48647.02	1 kg

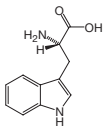
### ■ L-Tryptophan research grade, Ph. Eur.

(Trp: L-2-Amino-3-(indolylepropionic acid))

C<sub>11</sub>H<sub>12</sub>N<sub>2</sub>O<sub>2</sub> ♦ M<sub>r</sub> 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ WGK 1L ♦ HS 29224985

Assay (titr.) 98.5 - 101.0 %



Cat.No.	Size
37422.02	25 g
37422.03	100 g
37422.04	500 g

### □ TTC

see 37130 Triphenyltetrazolium chloride, page 140

### ■ Tube Adaptor

Cat.No.	Size
HPE-NW12	1 piece

### ■ Tween® 20 molecular biology grade

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)

M<sub>r</sub> ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 (NLP) ♦ WGK 1L ♦ HS 34021300

DNase/RNase not detected. HLB 16.7.

Heavy metals max. 10 ppm  
Water max. 3.0 %

® Registered trademark of ICI, Ltd.

Cat.No.	Size
39796.01	100 ml

**Tween® 20** pure, Ph. Eur., USP

(Polysorbate 20; Polyoxyethylene sorbitan monooleate, n ca. 20)  
M<sub>r</sub> ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 ♦ WGK 1L ♦ HS 34021300

HLB 16.7. Non-ionic surfactant that effectively suppresses unspecific reactions between antibodies, antigens and other molecules (1, 2). Also used as a solubilizer in membrane chemistry (3) and for density centrifugation of viruses (4).

Free dioxane	max. 1 ppm
Free ethylene oxide	max. 1 ppm
Heavy metals	max. 10 ppm
Non animal origin	

® Registered trademark of ICI, Ltd.

**References:**

1. Thean, E.T. & Toh, B.H. (1989) Anal. Biochem. **177**, 256-8
2. Tovey, E.R. et al. (1989) Electrophoresis **10**, 243-9
3. Lund, S. et al. (1989) J. Biol. Chem. **264**, 4907-15
4. Boeye, A. & DeRees, A. (1989) Arch. Virol. **107**, 77-84

Cat.No.	Size
37470.01	500 g
37470.02	5 kg

**Tween® 80** pure, Ph. Eur., USP/NF

(Polysorbate 80; Polyoxyethylene sorbitan monooleate, n ca. 20)  
M<sub>r</sub> ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

HLB 15.0; tested for use in tissue culture.

Density (25 °C)	1.06 - 1.09
Ethylene oxide value	max. 1 ppm
1,4-Dioxane content	max. 10 ppm
Heavy metals	max. 10 ppm
Non animal origin	

® Registered trademark of ICI, Ltd.

**References:**

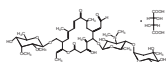
1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size
37475.01	500 g
37475.02	5 kg

**Tylosine-tartrate solution (100x)** sterile filtered

(Anti-PPLO-agent)  
HS 38220000

Storage temperature -15 °C to -25 °C



Macrocyclic antibiotic with large lactone ring. Inhibits bacterial protein synthesis at the ribosomal 50S-subunit. Acts bacteriostatic, in higher concentrations as well bactericidal. Active against gram positive bacteria and mycoplasma. Enhances immune response in chicken.

**References:**

1. Stewart, S.M. et al. (1969) J. Med. Microbiol. **2**, 287-92.
2. Baba, T. et al. (1998) Poult. Sci. **77**, 1306-11
3. Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8

Cat.No.	Size
47988.01	25 ml

**Uranyl acetate-2H<sub>2</sub>O** research grade

(CH<sub>3</sub>COO)<sub>2</sub>UO<sub>2</sub>·2H<sub>2</sub>O ♦ M<sub>r</sub> 424.2 ♦ CAS [6159-44-0]



**DANGER**  
H300-H330-H373-H411 ♦ MAK/TRK 0,25 mg/m<sup>3</sup>  
calculated as uran ♦ EG-Index 092-002-00-3 ♦

GGVSE/ADR 7 UN2910 ♦ IATA 7 UN2910 ♦ WGK 3L ♦ HS 28443019

For determination of unbound radioactive iodine in radiolabelled glycoproteins. For positive staining in electron microscopy.

Assay (titr.)	min. 98.0 %
Chloride (Cl)	max. 0.003 %
Lead (Pb)	max. 0.002 %

Export restricted. Please ask for details.

**References:**

1. Boratynski, J. (1987) Anal. Biochem. **160**, 35-8

Cat.No.	Size
77870.02	5 g
77870.01	25 g

**Urea** analytical grade, Ph. Eur., USP

(Carbamide; Carbonyl diamide)  
CH<sub>4</sub>N<sub>2</sub>O ♦ M<sub>r</sub> 60.06 ♦ CAS [57-13-6]



EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

A chaotropic agent used for the denaturation of proteins and as a mild solubilization agent for insoluble or denatured proteins. May be used with guanidine hydrochloride and dithiothreitol (DTT) in the refolding of denatured proteins into their native or active form.

In denaturing isoelectric focusing and 2D-electrophoresis used utilized to solubilize and denature proteins.

Suitable for pharmaceutical research

Assay (from N)	99.0 - 100.5 %
Heavy metals (Pb)	< 10 ppm

Cat.No.	Size
24524.02	1 kg
24524.03	5 kg

**Urea** electrophoresis grade

(Carbamide; Carbonyl diamide)  
CH<sub>4</sub>N<sub>2</sub>O ♦ M<sub>r</sub> 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ HS 29241900

For complete solubilization and unfolding of proteins, urea is included in the sample solution for 2D PAGE at a concentration of at least 8 M. It is also used to denature nucleic acids in sequencing gels. Application-tested quality.

Assay (from N)	99.0 - 100.5 %
Heavy metals	< 10 ppm

Cat.No.	Size
24525.01	250 g
24525.02	1 kg

**Urea** molecular biology grade

(Carbamide; Carbonyl diamide)  
CH<sub>4</sub>N<sub>2</sub>O ♦ M<sub>r</sub> 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

For all molecular biology applications, DNase/RNase not detected. A chaotropic agent used for the denaturation of proteins and as a mild solubilization agent for insoluble or denatured proteins.

Assay (from N)	99.0 - 100.5 %
A 1 cm/8 M in water	
260 nm	< 0.15
280 nm	< 0.1
Heavy metals (as Pb)	< 10 ppm
Iron (Fe)	max 0.5 ppm

Cat.No.	Size
39305.01	500 g

**Urease from jack bean min. 220 U/mg** lyophil.

(Urea amidohydrolase)  
EC 3.5.1.5 ♦ M<sub>r</sub> ca. 545 000 ♦ CAS [9002-13-5]



**DANGER**  
H334 ♦ EINECS 232-656-0 ♦ HS 35079090  
Storage temperature +2 °C to +8 °C

For the determination of urea (1).

**Unit definition:** 1 U catalyzes the formation of 1 µmole ammonia per minute at 25 °C, pH 8.0 from urea, determined in a coupled reaction with GLDH (2).

**Activity in other units:** If the unit of activity is defined in terms of 1 µmole urea decomposed per minute, this preparation would contain at least 90 units/mg.

**References:**

1. Kerscher, L. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. **8**, p. 444-53
2. Kaltwasser, H. & Schlegel, H.G. (1966) Anal. Biochem. **16**, 132-8

Cat.No.	Size
37799.01	100 mg
37799.03	1 g

### ■ UV Filter (58 mm) for DIAS-III

HS 90275000

Cat.No.	Size
UV-58	1 piece

### ■ UV Protection Lid, for SERVA UV Table CII

HS 90275000

Cat.No.	Size
UVPL-CII	1 piece

### ■ UV Replacement Bulbs, for BlueCube 300

HS 90275000

Cat.No.	Size
BC-RB	4 pieces

### ■ UV to Blue Light Converter Screen

HS 90278017

Converter plate for conversion of UV light into blue light. The combination of this low-cost plate with a UV transilluminator replaces an extra blue light table, e.g. for the documentation of SERVA DNA Stain Clear G stained DNA gels.

Outer dimensions: 33.5 cm x 27 cm  
Filter glass dimensions: 29 cm x 24,5 cm

Cat.No.	Size
UV-BLC	1 piece

### ■ UV to White Light Converter Screen

HS 90278017

Converter plate for conversion of UV light into visible light. The combination of this low-cost plate with a UV transilluminator replaces an extra white light table, e.g. for the documentation of Coomassie-stained protein gels or autoradiographs.

Outer dimensions: 33.5 cm x 27 cm  
Filter glass dimensions: 29 cm x 24.5 cm

Cat.No.	Size
UV-WLC	1 piece

### ■ UV Transparent Gel Tray, for BM-200, 15 cm x 15 cm

Gel width 15 cm

HS 90279050

UV transparent gel tray (15 x 15 cm) for BlueMarine™ 200. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size
BM-200-15-2	1 piece

### ■ UV Transparent Gel Tray, for BM-200, 20 cm x 15 cm

Gel width 15 cm

HS 90279050

UV transparent gel tray (15 x 20 cm) for BlueMarine™ 200. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size
BM-200-20-2	1 piece

### ■ UV Transparent Gel Tray, for BlueMarine 100,

7 cm x 10 cm, Gel width 7 cm

HS 90271090

UV transparent gel tray (7 x 10 cm) for BlueMarine™ 100. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size
BM-100-21	1 piece

### ■ Valinomycin research grade

(cyclo(Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val))

$C_{54}H_{90}N_6O_{18}$  ♦  $M_r$  1111.3 ♦ CAS [2001-95-8]



DANGER

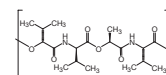
H300-H310-H330 ♦ GGVSE/ADR 6.1 | UN2811 ♦ IATA 6.1 | UN2811  
EINECS 217-896-6 ♦ WGK 3L ♦ HS 29419000

Cyclopeptide-antibiotic. Affects potassium permeability of biomembranes.  
D-HIV = Hydroxy-isovaleric acid, Lac = lactic acid.

Assay (HPLC) 93.0 - 100.0 %

#### References:

- Höfer, M. & Pressman, B.C. (1966) *Biochemistry* 5, 3919-25
- Davidson, G.A. & Berman, M.C. (1985) *J. Biol. Chem.* **260**, 7325
- Eytan, G.D. et al. (1990) *J. Biol. Chem.* **265**, 12949



Cat.No.	Size
38076.02	10 mg

### □ Versene disodium

see 11280 Ethylenediamine tetraacetic acid- $Na_2$ -salt, page 43

### ■ Videoprinter Thermopaper

HS 90275000

Cat.No.	Size
K-65HM	4 rolls

### ■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 6 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
Nominal dry flat width 10 mm  
Nominal dry diameter 6 mm  
Approx. filling volume 0.3 ml/cm  
Nominal dry wall thickness 51 µm

Cat.No.	Size
44104.01	5 m
44104.02	30 m

### ■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 16 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
Nominal dry flat width 25 mm  
Nominal dry diameter 16 mm  
Approx. filling volume 2.0 ml/cm  
Nominal dry wall thickness 20 µm

Cat.No.	Size
44110.01	5 m
44110.02	30 m
44110.04	152 m

■ **VISKING dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 21 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
 Nominal dry flat width 34 mm  
 Nominal dry diameter 21 mm  
 Approx. filling volume 3.4 ml/cm  
 Nominal dry wall thickness 23 µm

Cat.No.	Size
44114.01	5 m
44114.02	30 m

■ **VISKING dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 28 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
 Nominal dry flat width 44 mm  
 Nominal dry diameter 28 mm  
 Approx. filling volume 6.4 ml/cm  
 Nominal dry wall thickness 20 µm

Cat.No.	Size
44120.01	5 m
44120.02	30 m
44120.05	152 m

■ **VISKING dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 49 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
 Nominal dry flat width 77 mm  
 Nominal dry diameter 49 mm  
 Approx. filling volume 18 ml/cm  
 Nominal dry wall thickness 41 µm

Cat.No.	Size
44126.02	15 m
44126.03	152 m

■ **VISKING dialysis tubing, MWCO 12 000 - 14 000**

RC, diameter 75 mm

HS 39173200

Packed dry, made from regenerated cellulose (RC). With glycerol as protection for embrittlement, which can be easily removed by soaking in water. Contain low level of heavy metal and sulfide impurities. Highly resistant against chemicals, suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Pore diameter ca. 25 Å  
 Nominal dry flat width 117 mm  
 Nominal dry diameter 75 mm  
 Approx. filling volume 45.8 ml/cm  
 Nominal dry wall thickness 74 µm

Cat.No.	Size
44130.01	5 m
44130.02	15 m
44130.03	152 m

■ **VitalStain Blue 520 for flow cytometry**

HS: 38220000

Storage temperature -15 °C to -25 °C

Fixable viability dyes allow accurate discrimination between live and dead cells in flow cytometric analysis, based on cell membrane integrity. The exclusion of dead cells from data allows a better identification of cell populations and provides an accurate determination of cell viability within samples.

VitalStain Blue 520 allows staining of live cells and preserve the staining pattern after fixation and/or permeabilization.

VitalStains fixable viability dyes are amine reactive and cell impermeable. Dead cells with compromised cell membranes are typically labelled to a higher extend due to reaction with intracellular amines resulting in highly fluorescent dead cells. Impermeable live cells are labelled only on the cell surface and show dim fluorescence.

VitalStain Blue 520 is excited by the blue 488 nm laser and bright fluorescence is detected in the FITC channel.

- ◆ High brightness for optimal differentiation between live and dead cells
- ◆ Ready-to-use kit, DMSO pre-diluted to test size formulation
- ◆ Unlike 7-AAD and PI, labelled cells can be fixed, permeabilized, washed and stained
- ◆ Suitable for any cell species

Cat.No.	Size
59009.01	100 tests

■ **VitalStain Red 660 for flow cytometry**

HS: 38220000

Storage temperature -15 °C to -25 °C

Fixable viability dyes allow accurate discrimination between live and dead cells in flow cytometric analysis, based on cell membrane integrity. The exclusion of dead cells from data allows a better identification of cell populations and provides an accurate determination of cell viability within samples.

VitalStain Red 660 allows staining of live cells and preserve the staining pattern after fixation and/or permeabilization.

VitalStains fixable viability dyes are amine reactive and cell impermeable. Dead cells with compromised cell membranes are typically labelled to a higher extend due to reaction with intracellular amines resulting in highly fluorescent dead cells. Impermeable live cells are labelled only on the cell surface and show dim fluorescence.

VitalStain Red 660 is excited by the red 633 nm laser and bright fluorescence is detected in the red channel.

- ◆ High brightness for optimal differentiation between live and dead cells
- ◆ Ready-to-use kit, DMSO pre-diluted to test size formulation
- ◆ Unlike 7-AAD and PI, labelled cells can be fixed, permeabilized, washed and stained
- ◆ Suitable for any cell species

Cat.No.	Size
59010.01	100 tests



### ■ VitalStain Red 780 for flow cytometry

HS: 38220000

Storage temperature -15 °C to -25 °C

Fixable viability dyes allow accurate discrimination between live and dead cells in flow cytometric analysis, based on cell membrane integrity. The exclusion of dead cells from data allows a better identification of cell populations and provides an accurate determination of cell viability within samples.

VitalStain Red 780 allows staining of live cells and preserve the staining pattern after fixation and/or permeabilization.

VitalStains fixable viability dyes are amine reactive and cell impermeable. Dead cells with compromised cell membranes are typically labelled to a higher extend due to reaction with intracellular amines resulting in highly fluorescent dead cells. Impermeable live cells are labelled only on the cell surface and show dim fluorescence.

VitalStain Red 780 is excited by the red 633 nm laser and bright fluorescence is detected in the IR/APC channel.

- ◆ High brightness for optimal differentiation between live and dead cells
- ◆ Ready-to-use kit, DMSO pre-diluted to test size formulation
- ◆ Unlike 7-AAD and PI, labelled cells can be fixed, permeabilized, washed and stained
- ◆ Suitable for any cell species

Cat.No.	Size
59011.01	100 tests

### ■ VitalStain Violet 500 for flow cytometry

HS: 38220000

Storage temperature -15 °C to -25 °C

Fixable viability dyes allow accurate discrimination between live and dead cells in flow cytometric analysis, based on cell membrane integrity. The exclusion of dead cells from data allows a better identification of cell populations and provides an accurate determination of cell viability within samples.

VitalStain Violet 500 allows staining of live cells and preserve the staining pattern after fixation and/or permeabilization.

VitalStains fixable viability dyes are amine reactive and cell impermeable. Dead cells with compromised cell membranes are typically labelled to a higher extend due to reaction with intracellular amines resulting in highly fluorescent dead cells. Impermeable live cells are labelled only on the cell surface and show dim fluorescence.

VitalStain Violet 500 is excited by the violet 405 nm laser and bright fluorescence is detected in the FITC channel.

- ◆ High brightness for optimal differentiation between live and dead cells
- ◆ Ready-to-use kit, DMSO pre-diluted to test size formulation
- ◆ Unlike 7-AAD and PI, labelled cells can be fixed, permeabilized, washed and stained
- ◆ Suitable for any cell species

Cat.No.	Size
59008.01	100 tests

### □ Vitamin B<sub>1</sub> hydrochloride

see 36020 Thiamine-HCl, page 139

### ■ Vitamin B<sub>12</sub> cryst. pure, Ph. Eur., USP

(Cyanocobalamin; Extrinsic Factor; Antianemic vitamin B)  
C<sub>63</sub>H<sub>88</sub>N<sub>14</sub>O<sub>14</sub>PCo ♦ M<sub>r</sub> 1355.4 ♦ CAS [68-19-9]

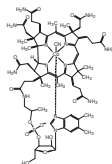
EINECS 200-680-0 ♦ WGK 1L ♦ HS 29362600

Storage temperature +2 °C to +8 °C

Assay (UV), dried 96.0 - 100.5 %

Non-animal origin.

Protect from light!



Cat.No.	Size
38310.02	500 mg

### □ Vitamin C

see 14030 L-Ascorbic acid, page 153

### □ Vitamin H

see 15060 (+)-Biotin, page 15

### ■ Water demineralized, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size
39800.01	500 ml

### ■ Water DEPC (0.1 %) treated, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size
39798.03	500 ml

### ■ Water for UHPLC-MS

CAS [7732-18-5]

EINECS 231-791-2 ♦ HS 28539010

Special grade for excellent performance in ultra high performance liquid chromatography-tandem mass spectrometry (UHPLC-MS/MS).

Conductivity	≤ 0.09 µS/cm
Total organic carbon	≤ 10 ppb
Acidity	≤ 0.0002 %
Alkalinity	≤ 0.00005 %
Residue on evaporation	≤ 0.4 ppm

#### Transmittance

200 nm	min. 95.0 %
230 nm	min. 99.0 %

#### UHPLC gradient peak

210 nm	max. 2 mAU
Drift at 210 nm	max. 8 mAU
Drift at 254 nm	max. 3 mAU

#### Test LC-MS TIC (50 – 2000 m/z)

##### ES I(+)

Sensitive impurities (reserpine) max. 30 ppb

#### Metal Compounds

Na/K/Ca	max. 50 ppb
Al/Fe/Mg	max. 20 ppb

Microfiltered, 0.1 µm

Cat.No.	Size
45637.01	2,5 L

### ■ White Light Top Light for DIAS-III

HS 90275000

Cat.No.	Size
WL-II	1 piece

### ■ WST 1

(2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfophenyl)-2H-tetrazolium,Na-salt)

C<sub>19</sub>H<sub>11</sub>N<sub>5</sub>O<sub>9</sub>S<sub>2</sub>Na ♦ M<sub>r</sub> 651.35 ♦ CAS [150849-52-8]

#### WARNING

H302-H312-H315-H319-H332-H335 ♦  
HS 29339980

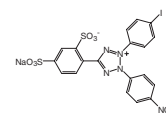
Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble (>0.1 M) formazan upon reduction. Suitable for cell proliferation and cytotoxicity assays.  
*Keep dry and dark.*

#### References:

1. Ishiyama, M. et al. (1993) Chem. Pharm. Bull. **41**, 1118
2. Ishiyama, M. et al. (1995) In vitro Toxicol. **8**, 187
3. Ishiyama, M. et al. (1995) Analyst **120**, 113

Cat.No.	Size
38391.01	25 mg
38391.02	100 mg



### □ X-Gal

see 15243 5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal), page 21

**Xpress Blotting Buffer (10x) for Western Blotting**

HS 38220000

The Xpress Blotting Buffer is a ready-to-use buffer reagent for the fast and efficient semi-dry transfer of high and low molecular weight proteins in only 15 min. The buffer system is compatible with nitrocellulose and PVDF membranes. Sufficient for at least 40 vertical mini SDS PAGE gels.

Cat.No.	Size
42661.01	1 L

**Xpress Blotting Kit for Western Blotting**

HS 38220000

Kit for fast Semi-Dry Western Blotting of 10 vertical mini SDS PAGE gels. SERVA Xpress Blotting Buffer is a ready-to-use buffer reagent for the fast and efficient semi-dry transfer of high and low molecular weight proteins in only 15 min.

The use of SERVA's newly developed Blotting Fleece instead of blotting paper allows an efficient, undisturbed transfer in a short time. The buffer system is compatible with nitrocellulose and PVDF membranes.

**Content:**

- 250 ml 10x SERVA Xpress Blotting Buffer
- 20x Blotting Fleece sheets (size 80 mm x 85 mm)
- 10x Connection Paper (size 80 mm x 85 mm)

Cat.No.	Size
42662.01	1 kit

**Xpress NC Blotting Kit for Western Blotting**

HS 38220000

Kit for fast Semi-Dry Western Blotting of 10 vertical mini SDS PAGE gels on nitrocellulose membrane.

SERVA Xpress Blotting Buffer is a ready-to-use buffer reagent for the fast and efficient semi-dry transfer of high and low molecular weight proteins in only 15 min. The use of SERVA's newly developed Blotting Fleece instead of blotting paper allows an efficient, undisturbed transfer in a short time.

The pre-cut nitrocellulose membrane sheets show high protein binding, low background and improved stability for easier handling and re-probing.

**Content:**

- 250 ml 10x SERVA Xpress Blotting Buffer
- 20x Blotting Fleece sheets (size 80 mm x 85 mm)
- 10x Connection Paper (size 80 mm x 85 mm)
- 10x Nitrocellulose membrane sheets, pore size 0.2 µm (size 80 mm x 85 mm)

Cat.No.	Size
42663.01	1 kit

**Xpress PVDF Blotting Kit for Western Blotting**

HS 38220000

Kit for fast Semi-Dry Western Blotting of 10 vertical mini SDS PAGE gels on PVDF membrane.

SERVA Xpress Blotting Buffer is a ready-to-use buffer reagent for the fast and efficient semi-dry transfer of high and low molecular weight proteins in only 15 min. The use of SERVA's newly developed Blotting Fleece instead of blotting paper allows an efficient, undisturbed transfer in a short time.

The pre-cut PVDF membrane sheets with the pore size of 0.2 µm show high protein binding and low background.

**Content:**

- 250 ml 10x SERVA Xpress Blotting Buffer
- 20x Blotting Fleece sheets (size 80 mm x 85 mm)
- 10x Connection Paper (size 80 mm x 85 mm)
- 10x PVDF membrane sheets, pore size 0.2 µm (size 80 x 85 mm)

Cat.No.	Size
42664.01	1 kit

**Xpress Micro Dialyzer MD100, MWCO 2 kDa 1 cartridge**

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip.

Cat.No.	Size
46088.01	8 pieces

**Xpress Micro Dialyzer MD100, MWCO 2 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46089.01	1 kit

**Xpress Micro Dialyzer MD100, MWCO 3.5 kDa**

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46100.01	12 pieces

### ■ Xpress Micro Dialyzer MD100, MWCO 3.5 kDa 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46103.01	8 pieces

### ■ Xpress Micro Dialyzer MD100, MWCO 3.5 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – detachable 8-device strips, scalable from 1 to 96 samples
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46104.01	1 kit

### ■ Xpress Micro Dialyzer MD100, MWCO 6 - 8 kDa

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46106.01	12 pieces

### ■ Xpress Micro Dialyzer MD100, MWCO 6 - 8 kDa 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46109.01	8 pieces

### ■ Xpress Micro Dialyzer MD100, MWCO 6 - 8 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – detachable 8-device strips, scalable from 1 to 96 samples
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46110.01	1 kit

### ■ Xpress Micro Dialyzer MD100, MWCO 12 - 14 kDa

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46112.01	12 pieces

**Xpress Micro Dialyzer MD100, MWCO 12 - 14 kDa**

1 cartridge  
HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46115.01	8 pieces

**Xpress Micro Dialyzer MD100, MWCO 12 - 14 kDa**

12 cartridges in deep well plate  
HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in a. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46116.01	1 kit

**Xpress Micro Dialyzer MD100, MWCO 20 kDa 1 cartridge**

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46090.01	8 pieces

**Xpress Micro Dialyzer MD100, MWCO 20 kDa**

12 cartridges in deep well plate  
HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46091.01	1 kit

**Xpress Micro Dialyzer MD100, MWCO 140 kDa 1 cartridge**

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46092.01	8 pieces

**Xpress Micro Dialyzer MD100, MWCO 140 kDa**

12 cartridges in deep well plate  
HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46093.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD100, MWCO 3.5 kDa

6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. rebuffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46105.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD100,

MWCO 6 - 8 kDa 6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. rebuffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46111.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD100,

MWCO 12 - 14 kDa 6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD100 is a ready-to-use dialysis system for sample volumes from 10 µl to 100 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 25 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. rebuffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46117.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD100, MWCO 2 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl).

The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46150.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD100, MWCO 2 kDa Refill kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 2 kDa, cat no. 46150.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46151.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD100, MWCO 3.5 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl).

The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46152.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD100, MWCO 3.5 kDa Refill Kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 3.5 kDa, cat no. 46152.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46153.01	1 kit



**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 6 - 8 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl). The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46154.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 6 - 8 kDa Refill Kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 6 - 8 kDa, cat no. 46154

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46155.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 12 - 14 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl). The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46156.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 12 - 14 kDa Refill Kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 12 - 14 kDa, cat no. 46156.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46157.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 20 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl). The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46159.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 20 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 20 kDa, cat no. 46159.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46160.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 140 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 10 µl - 100 µl). The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46198.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD100, MWCO 140 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD100, MWCO 140 kDa, cat no. 46198.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46200.01	1 kit

### ■ Xpress Micro Dialyzer MD300, MWCO 2 kDa 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46094.01	8 pieces

### ■ Xpress Micro Dialyzer MD300, MWCO 2 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46095.01	1 kit

### ■ Xpress Micro Dialyzer MD300, MWCO 3.5 kDa

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46118.01	12 pieces

### ■ Xpress Micro Dialyzer MD300, MWCO 3.5 kDa

1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46119.01	8 pieces

### ■ Xpress Micro Dialyzer MD300, MWCO 3.5 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46120.01	1 kit

### ■ Xpress Micro Dialyzer MD300, MWCO 6 - 8 kDa

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46122.01	

**Xpress Micro Dialyzer MD300, MWCO 6 - 8 kDa** 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46123.01	8 pieces

**Xpress Micro Dialyzer MD300, MWCO 6 - 8 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46124.01	1 kit

**Xpress Micro Dialyzer MD300, MWCO 12 - 14 kDa**

single fingers in microtube

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 12 single microdialysis devices in 2 ml microcentrifuge tube

Cat.No.	Size
46126.01	12 pieces

**Xpress Micro Dialyzer MD300, MWCO 12 - 14 kDa**

1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acid and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46127.01	8 pieces

**Xpress Micro Dialyzer MD300, MWCO 12 - 14 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46128.01	1 kit

**Xpress Micro Dialyzer MD300, MWCO 20 kDa** 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46096.01	8 pieces

### ■ Xpress Micro Dialyzer MD300, MWCO 20 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46097.01	1 kit

### ■ Xpress Micro Dialyzer MD300, MWCO 140 kDa 1 cartridge

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Compatible with 96-well deep well plates and 8-channel multipipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46098.01	8 pieces

### ■ Xpress Micro Dialyzer MD300, MWCO 140 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Flexible – dialysis against small volumes in micro tubes or microtiter plates and against larger volumes (with floating device) possible
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46099.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD300, MWCO 3.5 kDa 6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. rebuffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46121.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD300, MWCO 6 - 8 kDa 6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. rebuffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46125.01	1 kit

### ■ Xpress Micro Dialyzer GridKit 48 MD300, MWCO 12 - 14 kDa 6 cartridges in deep well plate incl. grid

HS 39173300

The Xpress Micro Dialyzer MD300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ More space for pipetting of the dialysis buffer
- ◆ Comfortable buffer exchange, e.g. re-buffering of your samples
- ◆ Secure grip of the Micro Dialyzer

**Content:** 6 detachable 8-microdialysis device strips, one 48-well deep well plate (5.0 ml volume), one grid, one lid

Cat.No.	Size
46129.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 2 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).  
The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.  
Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46186.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 2 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 2 kDa, cat. no. 46186.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46187.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 3.5 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).  
The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.  
Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46188.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 3.5 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 3.5 kDa, cat no. 46188.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46189.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 6 - 8 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).  
The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.  
Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46190.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 6 - 8 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 6 - 8 kDa, cat no. 46190.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46191.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 12 - 14 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).  
The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.  
Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46192.01	1 kit

**Xpress Dialysis Magnetic Mixing Box MD300, MWCO 12 - 14 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 12 - 14 kDa, cat no. 46192.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46193.01	1 kit



### ■ Xpress Dialysis Magnetic Mixing Box MD300, MWCO 20 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).

The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.

Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

#### Content:

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46194.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD300, MWCO 20 kDa Refill kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 20 kDa, cat no. 46194.

#### Content:

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46195.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD300, MWCO 140 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl).

The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time.

Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

#### Content:

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46196.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box MD300, MWCO 140 kDa Refill kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box MD300, MWCO 140 kDa, cat no. 46196.

#### Content:

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46197.01	1 kit

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 2 kDa

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

Content: 1 detachable 8-microdialysis device strip

Cat.No.	Size
46162.01	8 pieces

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 2 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

Content: 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46163.01	1 kit

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 3.5 kDa

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

Content: 1 detachable 8-microdialysis device strip

Cat.No.	Size
46164.01	8 pieces

**Xpress Equilibrium Dialyzer ED300, MWCO 3.5 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46165.01	1 kit

**Xpress Equilibrium Dialyzer ED300, MWCO 6 - 8 kDa**

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46166.01	8 pieces

**Xpress Equilibrium Dialyzer ED300, MWCO 6 - 8 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46167.01	1 kit

**Xpress Equilibrium Dialyzer ED300, MWCO 12 - 14 kDa**

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46168.01	8 pieces

**Xpress Equilibrium Dialyzer ED300, MWCO 12 - 14 kDa**

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46169.01	1 kit

**Xpress Equilibrium Dialyzer ED300, MWCO 20 kDa**

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46170.01	8 pieces

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 20 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46171.01	1 kit

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 140 kDa

1 cartridge

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 1 detachable 8-microdialysis device strip

Cat.No.	Size
46172.01	8 pieces

### ■ Xpress Equilibrium Dialyzer ED300, MWCO 140 kDa

12 cartridges in deep well plate

HS 39173300

The Xpress Equilibrium Dialyzer ED300 is a ready-to-use dialysis system for sample volumes from 50 µl to 300 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device consists of a U-shaped capillary made from polypropylene with graduation marks in 75 µl increments on both sides. Optimized design for fast and easy equilibrium dialysis.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis – desalting of nucleic acids and proteins in ca. 30 min
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Ideally suited for dialysis in liquid handling systems
- ◆ Automation compatible – plate format conforms to the SBS Microplate Standard

**Content:** 12 detachable 8-microdialysis device strips, one 96-well deep well plate (2.2 ml volume)

Cat.No.	Size
46173.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box ED300, MWCO 2 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46174.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box ED300, MWCO 2 kDa Refill kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 2 kDa, cat no. 46174.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46175.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box ED300, MWCO 3.5 kDa

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46176.01	1 kit

### ■ Xpress Dialysis Magnetic Mixing Box ED300, MWCO 3.5 kDa Refill kit

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 3.5 kDa, cat no. 46176.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46177.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 6 - 8 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46178.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 6 - 8 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 6 - 8 kDa, cat no. 46178.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46179.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 12 - 14 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46180.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 12 - 14 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 12 - 14 kDa, cat no. 46180.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46181.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 20 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46182.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 20 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 20 kDa, cat no. 46182.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46183.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 140 kDa**

HS 39173300

All-in-one kit for accelerated high-throughput dialysis (sample volume 50 µl - 300 µl). Optimized design for fast and easy equilibrium dialysis. The especially designed dialysis box allows a greater buffer volume and better mixing through a magnetic stirrer bar compared to dialysis in a microtiter plate. This enables high-throughput dialysis of small sample volumes with reduced handling and accelerated dialysis time. Because the samples are in connection via the dialysis buffer, the dialysis device is especially suitable for samples with the same or similar salt content or buffer.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Dialysis box
- ◆ Magnetic stirring bar
- ◆ Sealing film

Cat.No.	Size
46184.01	1 kit

**Xpress Dialysis Magnetic Mixing Box ED300, MWCO 140 kDa Refill kit**

HS 39173300

Refill kit for Xpress Dialysis Magnetic Mixing Box ED300, MWCO 140 kDa, cat no. 46184.

**Content:**

- ◆ 12 cartridges (detachable 8-micro dialyzer strips) in handling box
- ◆ Sealing film

Cat.No.	Size
46185.01	1 kit

### ■ Xpress Mini Dialyzer MD1000, MWCO 2 kDa

single fingers in tube

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes

Cat.No.	Size
46144.01	6 pieces

### ■ Xpress Mini Dialyzer MD1000, MWCO 2 kDa

48 single fingers in deep well plate

HS 39173300

The Xpress Micro Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46145.01	1 kit

### ■ Xpress Mini Dialyzer MD1000, MWCO 3.5 kDa

single fingers in tube

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes

Cat.No.	Size
46130.01	6 pieces

### ■ Xpress Mini Dialyzer MD1000, MWCO 3.5 kDa

single fingers in tube plus 6 tubes

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes, 6 additional tubes, 1 forceps

Cat.No.	Size
46131.01	6 pieces

### ■ Xpress Mini Dialyzer MD1000, MWCO 3.5 kDa

48 single fingers in deep well plate

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46132.01	1 kit

### ■ Xpress Mini Dialyzer MD1000, MWCO 6 - 8 kDa

single fingers in tube

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes

Cat.No.	Size
46133.01	6 pieces



**Xpress Mini Dialyzer MD1000, MWCO 6 - 8 kDa**

single fingers in tube plus 6 tubes

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes, 6 additional tubes, 1 forceps

Cat.No.	Size
46134.01	6 pieces

**Xpress Mini Dialyzer MD1000, MWCO 6 - 8 kDa**

48 single fingers in deep well plate

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46135.01	1 kit

**Xpress Mini Dialyzer MD1000, MWCO 12 - 14 kDa**

single fingers in tube

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes

Cat.No.	Size
46136.01	6 pieces

**Xpress Mini Dialyzer MD1000, MWCO 12 - 14 kDa**

single fingers in tube plus 6 tubes

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes, 6 additional tubes, 1 forceps

Cat.No.	Size
46137.01	6 pieces

**Xpress Mini Dialyzer MD1000, MWCO 12 - 14 kDa**

48 single fingers in deep well plate

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46138.01	1 kit

**Xpress Mini Dialyzer MD1000, MWCO 20 kDa**

single fingers in tube

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 25 ml skirted, conical tubes

Cat.No.	Size
46146.01	6 pieces

### ■ Xpress Mini Dialyzer MD1000, MWCO 20 kDa

48 single fingers in deep well plate

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46147.01	1 kit

### ■ Xpress Mini Dialyzer MD1000, MWCO 140 kDa

single fingers in tube

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 6 single Mini Dialyzer in 28 ml skirted, conical tubes

Cat.No.	Size
46148.01	6 pieces

### ■ Xpress Mini Dialyzer MD1000, MWCO 140 kDa

48 single fingers in deep well plate

HS 39173300

The Xpress Mini Dialyzer MD1000 is a ready-to-use dialysis system for sample volumes from 150 µl to 1000 µl. Short diffusion distance and large surface area allow very rapid dialysis. The device has two capillary channels, one for sample loading and one for filling of the dialysis buffer. The Mini Dialyzer MD1000 is easily coupled to a strip by a key/slot mechanism.

- ◆ High-quality regenerated cellulose membranes
- ◆ Efficient and fast dialysis, easy change of dialysis buffer
- ◆ Up to 98 % sample recovery
- ◆ Easy handling – sample loading and retrieval can be done with standard laboratory micropipettes
- ◆ Scalable from 1 to 48 samples
- ◆ Compatible with standard 48-well deep well plates

**Content:** 48 single Mini Dialyzer in one 48-well deep well plate (5.0 ml volume)

Cat.No.	Size
46149.01	1 kit

### ■ XTT

(Sodium 3,3'-[[(Phenylamino)carbonyl]-3,4-Tetrazolium]-Bis(4-methoxy-6-nitro)benzenesulfonic acid hydrate)

$C_{22}H_{16}N_8O_{13}S_2Na$  ♦  $M_r$  674.53 ♦ CAS [111072-31-2]

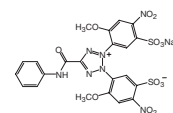
HS 29339980

Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble formazan upon reduction. Suitable for anti-HIV (1 - 3) and anti-tumor (4 - 6) drug testing as well as for cell proliferation assays (7 - 8).

#### References:

1. Weislov, O.S. et al. (1989) J. Natl. Cancer Inst. **81**, 577-86
2. Gulakowski, R.J. et al. (1991) J. Virol. Methods **33**, 87-100
3. Yu, K.L. et al. (1992) J. Med. Chem. **35**, 2958-69
4. Scudiero, D.A. et al. (1988) Cancer Res. **48**, 4827-33
5. Jost, L.M. et al. (1992) J. Immunol. Methods **147**, 153-65
6. Kondo, T. et al. (1994) Oncology **51**, 535-9
7. Roehm, N.W. et al. (1991) J. Immunol. Methods **142**, 257-65
8. Buttke, T.M. et al. (1993) J. Immunol. Methods **157**, 233-40



Cat.No.	Size
38450.01	50 mg
38450.02	250 mg

### ■ XTT Cell Proliferation Assay

HS 38220000

Storage temperature -15 °C to -25 °C

The XTT Cell Proliferation Assay is a colorimetric assay that detects the cellular metabolic activities. During the assay, the yellow tetrazolium salt XTT is reduced to a highly coloured formazan dye by dehydrogenase enzymes in metabolically active cells. This conversion only occurs in viable cells and thus, the amount of the formazan produced is proportional to viable cells in the sample. The formazan dye formed in the assay is soluble in aqueous solution and can be quantified by measuring the absorbance at wavelength 450 nm using a spectrophotometer. An electron coupling reagent, such as N-methylphenazonium methyl sulfate (PMS) can significantly improve the efficiency of XTT reduction in cells.

- ◆ Easy to use - no need for additional reagents and washing procedures
- ◆ Rapid and sensitive – no solubilisation step, works with low cell concentrations
- ◆ Accurate – dye absorbance proportional to the number of cells/well

**Content:** 2x 25 ml XTT Reagent, 1 ml Activation Reagent

Cat.No.	Size
39904.01	1 kit

### ■ Xylan from beech wood pure

CAS [9014-63-5]

Storage Temperature: +15 °C to +30 °C

EINECS 232-760-6 ♦ WGK 1 ♦ HS 29400000

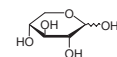
Highly purified xylan from beech wood for use in research, biochemical enzyme assays and *in vitro* diagnostic analysis.

Cat.No.	Size
38500.02	25 g

### ■ D-Xylose research grade

$C_5H_{10}O_5$  ♦  $M_r$  150.13 ♦ CAS [58-86-6]

EINECS 200-400-7 ♦ WGK 1 ♦ HS 29400000



Xylose, an aldopentose, has been used e.g. in biochemical tests for the identification of microbes, to stimulate microbial activity.

Assay	min. 99.0 %
MP	145 - 153 °C
[α] 20 °C/D	
(c=10 % in water, after 24 h)	+19.0 ° to +21.0 °
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size
38530.02	500 g

**■ Yeast extract SERVABACTER® powder**

CAS [8013-01-2]

EINECS 232-387-9 ♦ HS 38210000

Water soluble fraction of yeast autolysate. A 2 % aqueous solution is clear and has a pH of ca. 6.5 - 7.5. Rich in B vitamins and growth factors, convenient standard material for culture media. Tested for use in tissue culture.

SERVABACTER = registered trademark of SERVA

Cat.No.	Size
24540.02	500 g
24540.03	5 kg

**■ YPD Agar, powder 65 g for 1 liter medium**

HS 38210000

A nutritious general growth medium for the propagation of yeast

- 20 g/l Tryptone
- 10 g/l Yeast extract
- 20 g/l Dextrose
- 15 g/l Agar

For making 1 L agar medium, suspend 65 g in 1 L distilled water and sterilize by autoclaving. Cool to 45 °C prior dispensing into sterile petri dishes.

**References:**

1. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size
48508.01	650 g

**■ YPD Medium, powder 50 g for 1 liter medium**

HS 38210000

A nutritious general growth medium for the propagation of yeast.

- 20 g/l Tryptone
- 10 g/l Yeast extract
- 20 g/l Dextrose

For making 1 L liquid medium suspend 50 g in 1 L distilled water and sterilize by autoclaving.

**References:**

1. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size
48507.01	500 g

**■ 2xYT Medium, powder 31 g for 1 liter medium**

HS 38210000

For cultivation of *E. coli* and M13 bacteriophages in molecular biology.

- 16 g/l Tryptone
- 10 g/l Yeast extract
- 5 g/l NaCl

For making 1 L 2x liquid medium suspend 31 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

**References:**

1. Sambrook, J., et al., Molecular Cloning : A Laboratory Manual, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size
48503.01	620 g

**■ Zymolyase® from *Arthrobacter luteus*, min. 20 U/mg lyophil.**

(Lyticase,  $\beta$ -1,3-Glucanlaminaripentaohydrolase)

DANGER

H334

CAS [37340-57-1] ♦ HS 35079090

Zymolyase®, produced by a submerged culture of *Arthrobacter luteus* (1), has strong lytic activity against living yeast cell walls to produce protoplast or spheroplast of various strains of yeast cells (2, 3).

This enzyme is prepared by ammonium sulfate precipitation. The essential enzyme activity for the lysis of yeast cells is  $\beta$ -1,3-glucan laminaripentaohydrolase. It hydrolyzes linear glucose polymers with  $\beta$ -1,3-linkages and releases specifically laminaripentaose as the main and minimum product unit (4, 5). Lytic activity varies depending on yeast strain, growth stage of yeast, or cultural conditions (6, 7, 8).

Contained main side activities are  $\beta$ -1,3-glucanase, protease, and mannanase (3).

At 30 °C about 70 % of the lytic activity is lost after 3 months and at 60 °C after 5 minutes all the lytic activity is lost. For lysis of viable cells the optimum temperature is 35 °C at pH 7.5 and for hydrolysis of yeast glucan 45 °C at pH 6.5.

Zymolyase® was shown to lyse *Ashbya*, *Candida*, *Debaryomyces*, *Eremothecium*, *Endomyces*, *Hansenula*, *Hanseniaspora*, *Kloeckera*, *Kluyveromyces*, *Lipomyces*, *Metschikowia*, *Pichia*, *Pullularia*, *Torulopsis*, *Saccharomyces*, *Saccharomycopsis*, *Saccharomyces*, *Schwanniomyces*, etc. (5). It is activated by a SH compound such as cysteine, 2-mercaptoethanol or dithiothreitol.

**Unit definition:** One unit of lytic activity is defined as the enzyme amount causing a decrease of 30 % in absorbance at 800 nm using 6 mg Brewer's yeast as substrate in phosphate buffer (pH 7.5) at 25 °C.

Zymolyase = registered trademark of Kirin Holdings Company Limited

**References:**

1. Kaneko, T. et al. (1969) J. Gen. Appl. Microbiol. **15**, 317 ff.
2. Kitamura, K. et al. (1971) Arch. Biochem. Biophys. **145**, 402 ff.
3. Kitamura, K. et al. (1972) J. Gen. Appl. Microbiol. **18**, 57 ff.
4. Kitamura, K. & Yamamoto, Y. (1972) Arch. Biochem. Biophys. **153**, 403 ff.
5. Kaneko, T. et al. (1973) Agric. Biol. Chem. (1973) **37**, 2295 ff.
6. Kitamura, K. et al. (1974) J. Gen. Appl. Microbiol. **20**, 323 ff.
7. Kitamura, K. & Yamamoto, Y. (1981) Agric. Biol. Chem. **45**, 1761 ff.
8. Kitamura, K. & Tanabe, K. (1982) Agric. Biol. Chem. **46**, 553 ff.

Cat.No.	Size
33759.01	100 mg
33759.02	500 mg

### Zymolyase® from *Arthrobacter luteus*, min. 100 U/mg lyophil.

(Lyticase,  $\beta$ -1,3-Glucanlaminaripentaohydrolase)



DANGER

H334

CAS [37340-57-1] ♦ HS 35079090

Zymolyase®, produced by a submerged culture of *Arthrobacter luteus* (1), has strong lytic activity against living yeast cell walls to produce protoplast or spheroplast of various strains of yeast cells (2, 3).

This enzyme is prepared by ammonium sulfate precipitation and further purified by affinity chromatography. The essential enzyme activity for the lysis of yeast cells is  $\beta$ -1,3-glucan laminaripentaohydrolase. It hydrolyzes linear glucose polymers with  $\beta$ -1,3-linkages and releases specifically laminaripentaose as the main and minimum product unit (4, 5). Lytic activity varies depending on yeast strain, growth stage of yeast, or cultural conditions (6, 7, 8). Contained main side activities are  $\beta$ -1,3-glucanase, protease, and mannanase (3).

At 30 °C about 90 % of the lytic activity is lost after 3 months and at 60 °C after 5 minutes all the lytic activity is lost.

For lysis of viable cells the optimum temperature is 35 °C at pH 7.5 and for hydrolysis of yeast glucan 45 °C at pH 6.5.

Zymolyase® was shown to lyse *Ashbya*, *Candida*, *Debaryomyces*, *Eremothecium*, *Endomyces*, *Hansenula*, *Hanseniaspora*, *Kloeckera*, *Kluyveromyces*, *Lipomyces*, *Metschikowia*, *Pichia*, *Pullularia*, *Torulopsis*, *Saccharomyces*, *Saccharomycopsis*, *Saccharomycodes*, *Schwanniomyces*, etc. (5). It is activated by a SH compound such as cysteine, 2-mercaptoethanol or dithiothreitol.

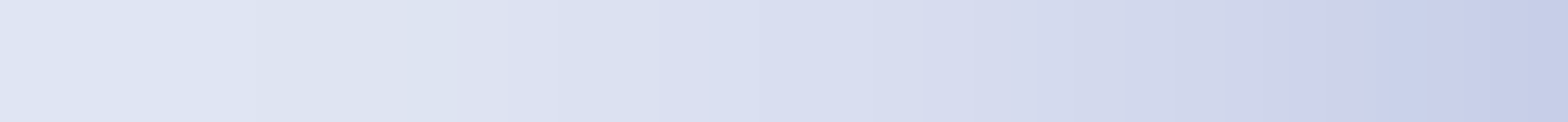
**Unit definition:** One unit of lytic activity is defined as the enzyme amount causing a decrease of 30 % in absorbance at 800 nm using 6 mg Brewer's yeast as substrate in phosphate buffer (pH 7.5) at 25 °C.

Zymolyase = registered trademark of Kirin Holdings Company Limited

#### References:

1. Kaneko, T. et al. (1969) J. Gen. Appl. Microbiol. **15**, 317 ff.
2. Kitamura, K. et al. (1971) Arch. Biochem. Biophys. **145**, 402 ff.
3. Kitamura, K. et al. (1972) J. Gen. Appl. Microbiol. **18**, 57 ff.
4. Kitamura, K. & Yamamoto, Y. (1972) Arch. Biochem. Biophys. **153**, 403 ff.
5. Kaneko, T. et al. (1973) Agric. Biol. Chem. (1973) **37**, 2295 ff.
6. Kitamura, K. et al. (1974) J. Gen. Appl. Microbiol. **20**, 323 ff.
7. Kitamura, K. & Yamamoto, Y. (1981) Agric. Biol. Chem. **45**, 1761 ff.
8. Kitamura, K. & Tanabe, K. (1982) Agric. Biol. Chem. **46**, 553 ff.

Cat.No.	Size
33760.01	100 mg
33760.02	500 mg





## Appendix

<b>Erläuterungen zum Produkteintrag (German)</b>	<b>168</b>
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# Erläuterungen zum Produkteintrag

## 1 N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid

2 analytical grade

3 (HEPES)

4  $C_8H_{16}N_2O_4S$   $M_r$  238.3  $\diamond$  CAS [7365-45-9]

7 EINECS 230-907-9  $\diamond$  WGK 1L  $\diamond$  HS 29335995

pKa 20= 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

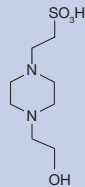
A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.08

Heavy metals (Pb) max. 10 ppm

pH 10 % in water 5.0 - 6.5



8

### References:

- Good, N.E. et al. (1966) *Biochemistry* **5**, 467-77
- Shipman jr., Ch. (1969) *Proc. Soc. Exp. Biol. Med.* **130**, 305-10
- Vega, C.A. & Bates, R.G. (1976) *Anal. Chem.* **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

10

## Glucose oxidase from *Aspergillus niger* ca. 220 U/mg lyophil.

11 EC 1.1.3.4

12 Storage temperature -15 °C to -25 °C \* 13

## Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

14 C.I.20470  $\diamond$   $C_{22}H_{14}N_6O_9S_2 \cdot Na_2$   $\diamond$   $M_r$  616.5  $\diamond$

## Acrylamide 4X analytical grade

$C_3H_5NO$   $\diamond$   $M_r$  71.1  $\diamond$  CAS [79-06-1]

15   DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 16

Muta. 1B, Carc. 1B, Repr. 2  $\diamond$  MAK/TRK 0,03 mg/m<sup>3</sup> 19

EG-Index 616-003-00-0  $\diamond$  EINECS 201-173-7 18

17 GGVSE/ADR 6.1 III UN2074  $\diamond$  IATA 6.1 III UN2074  $\diamond$

20 WGK 3L 21

## 1. Produktname

### 2. Reinheitsgrad

**analytical grade**

Standardqualität für analytische Arbeiten

**research grade (reinst)**

Hochwertige Qualität für Forschung und Produktion

**molecular biology grade**

Laboratoriumsreagens für die molekularbiologische Forschung, getestet auf Abwesenheit von DNAsen und RNAsen

**pure (rein)**

Gereinigtes Reagens für universellen Einsatz

**pract.**

Reagens für synthetische Zwecke

Nur einwandfreie, unseren Spezifikationen entsprechende Ware wird für den Verkauf freigegeben.

Jedes Produkt enthält eine Chargenkennzeichnung, die auf dem Etikett als Zahlencode oder Zahlen- und Buchstabencode vermerkt ist (im Falle einer Rückfrage bitte angeben).

### 3. Synonyme

### 4. Summenformel

### 5. Molekulargewicht

Relative Molekülmasse

### 6. CAS-Nummer

Registriernummer des Chemical Abstracts Service. Die CAS-Nummern dienen zur Sicherstellung der Identität chemischer Verbindungen.

### 7. HS-Nummer

Harmonisiertes System zur Bezeichnung und Zuordnung der Waren im Internationalen Handel (= Zolltarif-Nummer)

## 8. Produktbeschreibung

Mit Anwendungshinweisen, Literaturzitat, chemischen und physikalischen Spezifikationen

## 9. Strukturformel

## 10. Katalognummer, Abpackungen, Preise (EUR)

Viele unserer Produkte sind auch in größeren Mengen als jeweils im Katalog angegeben zu günstigeren Konditionen lieferbar. Bitte fragen Sie nach »Bulk Quantities«.

## 11. EC-Nummer

Enzyme-Klassifizierungsnummer

## 12. Lagertemperatur

Ist bei einem Produkt keine spezielle Lagertemperatur angegeben, erfolgt die Lagerung bei Raumtemperatur.

## 13. Kühlsendung

Besonders empfindliche Präparate werden gekühlt (\*) oder gefroren (\*\*\*) verschickt. Die Haltbarkeit bei Trockeneisversand beträgt bei ca. 30 °C Außentemperatur mindestens 48 Stunden.

Für Trockeneislieferungen berechnen wir eine Pauschale.

## 14. CI-Nummer










Farbenindexnummer (Colour Index)

## 15. Einstufung gefährlicher Stoffe/ Gemische

Das europäische System zur global harmonisierten Einstufung, Kennzeichnung und Verpackung von Stoffen und Gemischen (GHS/CLP) basiert auf der seit dem 20. Januar 2009 in Kraft getretenen Verordnung (EG) Nr. 1272/2008 (europäische CLP-Verordnung) des europäischen Parlaments und des Rates. SERVAs Stoffe und Gemische werden seit Dezember 2010 gemäß dieser Verordnung eingestuft, gekennzeichnet und verpackt.

Ziel der Verordnung ist es, ein hohes Schutzniveau für die menschliche Gesundheit und für die Umwelt sicherzustellen. Außerdem wird eine weltweite Harmonisierung von Vorschriften für die Einstufung und Kennzeichnung von chemischen Stoffen und Gemischen erreicht.

Nach CLP-Verordnung Anhang V sind die gefährlichen Stoffe und Gemische mit folgenden Gefahrenpiktogrammen zu kennzeichnen:

	
GHS01	GHS06
	
GHS02	GHS07
	
GHS03	GHS08
	
GHS04	GHS09
	
GHS05	

## 16. R-Begriffsbestimmungen in Verordnung (EG) Nr. 1272/2008, die Einstufung und Kennzeichnung gefährlicher Stoffe und Gemische betreffend

### Signalwort:

**Gefahr:** Signalwort für die schwerwiegenden Gefahrenkategorien

**Achtung:** Signalwort für die weniger schwerwiegenden Gefahrenkategorien

### Gefahrenhinweise (H-Sätze):

beschreiben die Art und gegebenenfalls den Schweregrad der von einem gefährlichen Stoff oder Gemisch ausgehenden Gefahr.

### Sicherheitshinweise (P-Sätze):

Textaussagen, die eine (oder mehrere) empfohlene Sicherheitsmaßnahme(n) beschreiben.

### Gemische:

Gemische oder Lösungen, die aus zwei oder mehr Stoffen bestehen

### SVHC:

Besonders besorgniserregende Substanz der sogenannten Kandidatenliste für die mögliche Aufnahme in das Verzeichnis der zulassungspflichtigen Stoffe (Anhang XIV der Verordnung (EG) Nr. 1907/2006). Die Stoffe erfüllen mindestens eines der in Artikel 57 dieser Verordnung angegebenden Kriterien:

- krebserzeugend
- erbgutverändernd
- fortpflanzungsgefährdend
- persistent, bioakkumulierbar und toxisch
- sehr persistent und sehr bioakkumulierbar
- wahrscheinlich mit schwerwiegenden Wirkungen auf die menschliche Gesundheit oder auf die Umwelt

Der Pflicht zur Weitergabe von Informationen über Stoffe gemäß Verordnung (EG) Nr. 1907/2006 bezüglich der sehr besorgniserregenden Stoffe kommt SERVA durch die Markierung dieser Stoffe mit SVHC nach.

## 17. EG-Index-Nummer

Kennnummer eines Stoffes oder einer bestimmten Stoffgruppe in der Liste der harmonisierten Einstufung und Kennzeichnung gefährlicher Stoffe im Anhang VI der Verordnung (EG) 1272/2008.

## 18. EG-Nummer

Offizielle Nummer des Stoffes in der Europäischen Union. Es werden drei Gruppen unterschieden:  
1) EINECS: kann dem Verzeichnis der auf dem Markt vorhandenen Stoffe entnommen werden, beginnend mit 200-001-8  
2) EILINCS: kann der Liste der angemeldeten Stoffe entnommen werden, beginnend mit 400-010-09  
3) NLP: kann der Liste »no-longer-polymer« entnommen werden, beginnend mit 500-001-0

## 19. Luftgrenzwert

Die Gefahrstoffverordnung unterscheidet nachfolgende Grenzwerte in der Luft am Arbeitsplatz:

**AGW:** Arbeitsplatzgrenzwert

### Begriffsbestimmungen (Gefahrenkategorien) gemäß Anhang I der Verordnung (EG) Nr. 1272/2008

#### Karzinogen

Ein Stoff oder ein Gemisch, der/das Krebs erzeugen oder die Krebshäufigkeit erhöhen kann, wird als karzinogen angesehen (differenziert als Kategorie 1A, 1B und Kategorie 2)

#### Mutagen

wird bei Stoffen verwendet, die zu einer gesteigerten Mutationshäufigkeit in Zellpopulationen und/oder Organismen führen (differenziert als Kategorie 1A, 1B und Kategorie 2).

### Reproduktionstoxizität:

Beeinträchtigungen von Sexualfunktion und Fruchtbarkeit bei Mann und Frau sowie Entwicklungstoxizität bei den Nachkommen (differenziert als Kategorie 1A, 1B und Kategorie 2).

## 20. Gefahrgut-Transport

Gegenstände oder Stoffe, welche in der Lage sind, ein Risiko für Gesundheit, Sicherheit, Eigentum oder die Umwelt darzustellen und die in den Verzeichnissen gefährlicher Güter der Gefahrgutvorschriften des angewendeten Verkehrsträgers aufgeführt oder die entsprechend dieser Vorschriften klassifiziert sind.

### UN-Nummer

Vierstellige Ziffer, die einem Stoff oder einer bestimmten Stoffgruppe vom UN-Sachverständigenausschuss für den Gefahrguttransport zur Identifizierung zugeordnet wurde.

Die vorangestellten Buchstaben „UN“ müssen bei Verwendung dieser Nummer immer mit angegeben werden.

### ID-Nummer

Die ID-Nummer ist eine vorläufige Identifizierungsnummer in der 8000er Serie der IATA, für einen Gegenstand oder Stoff, der noch keiner UN-Nummer zugeordnet wurde. Die vorangestellten Buchstaben „ID“ müssen bei Verwendung immer mit angegeben werden.

Die Gefahrgüter sind für alle Verkehrsträger einheitlich in UN-Gefahrenklassen eingeteilt, einige sind weiter in Unterklassen differenziert:

Klasse	Beschreibung
1	Explosive Stoffe u. Gegenstände mit Explosivstoff
2	Gase
3	Entzündbare flüssige Stoffe
4.1	Entzündbare feste Stoffe, selbstzersetzliche Stoffe und desensibilisierte explosive feste Stoffe
4.2	Selbstentzündliche Stoffe
4.3	Stoffe, die in Berührung mit Wasser entzündbare Gase bilden
5.1	Entzündend (oxidierend) wirkende Stoffe
5.2	Organische Peroxide
6.1	Giftige Stoffe
6.2	Ansteckungsfähige Stoffe
7	Radioaktive Stoffe
8	Ätzende Stoffe
9	Verschiedene gefährliche Stoffe und Gegenstände

### Verpackungsgruppen

Gefahrgüter sind einer dem Grad der von ihnen ausgehenden Gefahr entsprechenden Verpackungsgruppe zugeteilt:

Verpackungsgruppe I - hohe Gefahr  
Verpackungsgruppe II - mittlere Gefahr  
Verpackungsgruppe III - geringe Gefahr

Für diese Gefahrgutverpackungen berechnen wir eine Kostenpauschale von EUR 30,00.

## Gefahrgutvorschriften differenziert nach den Verkehrsträgern :

### Straße:

ADR europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße (ADR).

### Schiene:

RID Ordnung über die internationale Eisenbahnbeförderung gefährlicher Güter

### Binnenwasserstraße:

ADN Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf Binnenwasserstraßen

### See:

IMDG-Code Internationaler Code für die Beförderung gefährlicher Güter mit Seeschiffen

### Luft:

IATA-DGR Gefahrgutvorschriften der IATA - Fluggesellschaften

Gefahrgüter können sicher transportiert werden, vorausgesetzt, dass einige Grundsätze genau befolgt werden.

Die richtige Deklaration durch den Versender gewährleistet, dass alle am Transportablauf Beteiligten wissen, welches Gefahrgut sie transportieren und was bei einem Vorfall oder Unfall am Boden oder im Flug zu tun ist.

Gefahrgüter sind normalerweise in UN-leistungsgeprüften Spezifikationsverpackungen verpackt. Solche sind nicht erforderlich, wenn Gefahrgut in „begrenzten Mengen“ oder „freigestellten Mengen“ transportiert wird.

*Für diese Gefahrgutverpackungen berechnen wir eine Kostenpauschale.*

## 21. WGK

Die wassergefährdenden Stoffe werden nach der Novelle VwVwS vom 27. Juli 2005 entsprechend ihrer Gefährlichkeit in eine der folgenden Wassergefährdungsklassen eingestuft:

**WGK 3:** stark wassergefährdend

**WGK 2:** wassergefährdend

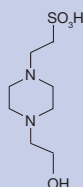
**WGK 1:** schwach wassergefährdend

## Key to Product Entries

- 1 **N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid**  
 2 analytical grade  
 3 (HEPES)  
 4  $C_8H_{18}N_2O_4S$   $M_r$  238.3  $\diamond$  CAS [7365-45-9]  
 7 EINECS 230-907-9  $\diamond$  WGK 1L  $\diamond$  HS 29335995

pKa 20= 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %  
 A 1 cm/10 % in water  
 260 nm max. 0.1  
 280 nm max. 0.08  
 Heavy metals (Pb) max. 10 ppm  
 pH 10 % in water 5.0 - 6.5



### References:

- Good, N.E. et al. (1966) *Biochemistry* **5**, 467-77
- Shipman jr., Ch. (1969) *Proc. Soc. Exp. Biol. Med.* **130**, 305-10
- Vega, C.A. & Bates, R.G. (1976) *Anal. Chem.* **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

### Glucose oxidase from *Aspergillus niger* ca. 220 U/mg lyophil.

- 11 EC 1.1.3.4  
 12 Storage temperature -15 °C to -25 °C \* 13

### Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

- 14 C.I.20470  $\diamond$   $C_{22}H_{14}N_6O_9S_2 \cdot Na_2$   $M_r$  616.5  $\diamond$

### Acrylamide 4X analytical grade

$C_3H_5NO$   $M_r$  71.1  $\diamond$  CAS [79-06-1]

- 15 DANGER  
 H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 16  
 Muta. 1B, Carc. 1B, Repr. 2  $\diamond$  MAK/TRK 0,03 mg/m<sup>3</sup> 19  
 17 EG-Index 616-003-00-0  $\diamond$  EINECS 201-173-7 18  
 20 GGVSE/ADR 6.1 III UN2074  $\diamond$  IATA 6.1 III UN2074  $\diamond$   
 WGK 3L 21

## 1. Product Name

### 2. Quality Characteristics

#### analytical grade

High quality reagent for analytical work.

#### research grade

High quality laboratory reagent for research and production.

#### molecular biology grade

High quality laboratory reagent for molecular biology research, DNase/RNase activity: none detected.

#### Pure

Multi-purpose reagent, purified.

#### pract.

Reagent for use in syntheses.

Only items which have been approved and which comply to our specifications are released for sale.

Each product has a lot indication marked on the label as a code which is needed as a reference for all claims.

## 3. Synonyma

## 4. Molecular Formula

## 5. Molecular Weight

Relative Molecular Mass

## 6. CAS Number

Chemical Abstracts Service Number

## 7. HS Numbers

Product numbers according to International Agreements on Tariffs.

## 8. Product Description

Including applications, literature references, chemical and physical parameters.

## 9. Structural Formula

## 10. Catalog Number, Package Sizes and Prices (EUR)

Please ask for quantities others than those stated here-many of our products are available at favorable bulk prices.

## 11. EC-Number

Enzyme Classification Number

## 12. Storage Temperature

## 13. Refrigerated Shipments

If necessary our products are shipped chilled (\*) or frozen (\*\*) in containers withstanding ambient temperatures up to 30 °C for a minimum of 48 hours. A surplus fee is applicable.

## 14. CI-Number

Colour Index Number

## 15. Classification of hazardous substances and mixtures

The european system on globally harmonised classification, labelling and packaging of substances and mixtures (GHS/CLP) bases on Regulation (EC) No.1272/2008 (CLP-Regulation) which has become effective on 20th January 2009. SERVA's substances and mixtures are classified, labelled and packaged according to this regulation.

It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labelling of substances and mixtures.

According to Annex V of this regulation the hazardous substances and mixtures have to be labeled with the hazard Pictograms as given below:

GHS01	GHS06
GHS02	GHS07
GHS03	GHS08
GHS04	GHS09
GHS05	

## 16. Definitions in Regulation (EC) No 1272/2008 concerning the classification of hazardous Substances and mixtures.

### Signal word:

**Danger:** a signal word indicating the more severe hazard categories

**Warning:** a signal word indicating the less severe hazard categories

#### Hazard statements (H-Phrases):

Describe the nature of the hazards of a hazardous substance or mixture, including, where appropriate, the degree of hazard

#### Precautionary statements (P-Phrases):

A phrase that describes recommended safety measure(s)

#### Mixture:

A mixture or solution composed of two or more substances

#### SVHC:

Substance of very high concern on the so called candidate list for a possible inclusion in the list of substances subject to authorisation (annex XIV of Regulation (EC) No. 1907/2006). Substances included on this list meet at least one of the criteria given in Article 57 of this regulation:

- carcinogenic
- mutagenic
- toxic for reproduction
- persistent, bioaccumulative and toxic
- very persistent and very bioaccumulative
- probable serious effects to human health or the environment

Referring to the duty to communicate informations on substances according to Regulation (EC) No. 1907/2006 regarding the substances of very high concern, SERVA marks these substances with SVHC.

### 17. EG Index Number

Number given by the list of appendix I of the Guideline No. 67/548/EWG (European Economic Community) respectively regulation (EG) No. 1272/2008.

### 18. EG Number

It is the official number of the substance within the European Union. The numbers are divided into three groups:

- 1) EINECS: The EINECS number can be obtained from the European Inventory of Existing Commercial Chemical Substance (EINECS), numbers start at 200-001-8
- 2) ELINCS: The ELINCS number can be obtained from the European List of Notified Substances, numbers start at 400-010-9
- 3) NLP: The NLP number can be obtained from the list of 'No-longer-polymers', numbers start at 500-001-0

### 19. Thresholds

The Hazardous Substances Ordinance provides the following definitions for a hazard present in the air at site of work (acc. To German official standards):

**OELV:** occupational exposure limit value

#### Definitions and hazard categories according to Annex I of Regulation (EC) No 1272/2008

**Carcinogen** means a substance or a mixture of substances which induce cancer or increase its incidence (distinguished as Category 1A, 1B and Category 2).

**Mutagen** used for agents giving rise to an increased occurrence of mutations in populations of cells and/or organisms (distinguished as Category 1A, 1B and Category 2).

**Reproductive toxicity:** Adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring (distinguished as Category 1A, 1B and Category 2).

## 20. Dangerous Goods Transport

Dangerous goods are articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods of the applied mode of transport's Dangerous Goods Regulations or which are classified according to these Regulations

#### UN-Number

The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances. The prefix „UN“ must always be used in conjunction with these numbers.

#### ID-Number

The ID-Number is a temporary identification number (ID) in the 8000 series assigned to an article or substance for which no UN-number has been assigned. The prefix „ID“ must always be used in conjunction with these numbers.

The dangerous goods are divided for all modes of transport in the following UN hazard classes, some are further distinguished in sub-divisions.

Class	Description
1	Explosives
2	Gases
3	Flammable liquids
4.1	Flammable solids, self-reactive substances and solid desensitized explosives
4.2	Substances liable to spontaneous combustion
4.3	Substances which, in contact with water, emit flammable gases
5.1	Oxidizers
5.2	Organic peroxides
6.1	Toxic substances
6.2	Infectious substances
7	Radioactive material
8	Corrosives
9	Miscellaneous dangerous goods

#### Packing Groups

Dangerous goods are assigned to the relevant packing group according to the degree of hazard they present:

Packing group I	- high danger
Packing group II	- medium danger
Packing group III	- low danger

#### Dangerous Goods Regulations distinguished as the modes of transport:

##### Road:

**ADR** European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

##### Rail:

**RID** Regulations concerning the International Carriage of Dangerous Goods by Rail

##### Inland waterway:

**ADN** European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

##### Sea:

**IMDG-Code** International Maritime Dangerous Goods Code

##### Air:

**IATA DGR** International Air Transport Association Dangerous Goods Regulations

Dangerous goods can be transported safely provided when certain principles are strictly followed.

The proper declaration of dangerous goods by the shipper ensures that all in the transportation chain know what dangerous goods they are transporting and what to do if an incident or accident occurs in flight or on the ground.

Dangerous goods normally are packed in UN performance-tested specification packagings. These are not required when dangerous goods are shipped in „limited quantities“ or „excepted quantities“.

*We reserve the right to ask for a surcharge for packaging suited for transportation of dangerous goods.*

















## 21. WGK

Water endangering substances are classified in compliance according to their hazardous properties:

<b>WGK 3:</b>	extremely hazardous for water
<b>WGK 2:</b>	hazardous for water
<b>WGK 1:</b>	slightly hazardous for water



## Global Harmonisiertes Einstufungs- und Kenzeichnungssystem (GHS)

Gefahr		GHS01	H200, H201, H202, H203, H240, H241
Achtung		GHS01	H204
Gefahr		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Achtung		GHS02	H223, H226, H228, H229, H242, H252, H261
Achtung	Kein Piktogramm		H221, H229
Gefahr		GHS03	H270, H271, H272
Achtung		GHS03	H272
Achtung		GHS04	H280, H281
Gefahr		GHS06	H300, H310, H330, H301, H311, H331
Achtung		GHS07	H302, H312, H332
Gefahr		GHS08	H340, H350, H360, H370, H372, H334, H304
Achtung		GHS08	H341, H351, H361, H371, H373
Gefahr		GHS05	H314, H318
Achtung		GHS05	H290
Achtung		GHS07	H315, H319, H317, H335, H336, H420
Achtung		GHS09	H400, H410
Kein Signalwort		GHS09	H411

Die GHS Verordnung bzw. CLP (Regulation on Classification, Labelling and Packaging of Substances and Mixtures) Verordnung (EG) Nr. 1272/2008 ist am 20. Januar 2009 in Kraft getreten.

Durch diese Verordnung werden die Stoffrichtlinie 67/548/EWG und die Zubereitungsrichtlinie 1999/45/EG durch eine neue Verordnung über einen Zeitraum von einigen Jahren ersetzt und die Verordnung EG Nr. 1907/2006 (REACH) geändert.

Ziel der Verordnung ist es, ein hohes Schutzniveau für die menschliche Gesundheit und für die Umwelt sicherzustellen. Außerdem wird eine weltweite Harmonisierung von Vorschriften für die Einstufung und Kennzeichnung von chemischen Stoffen und Gemischen erreicht.

Wir möchten unseren Kunden mit diesen Informationen einen Einblick in die neue Systematik vermitteln und gleichzeitig die Möglichkeit bieten, sich mit den neuen Piktogrammen sowie H- (Gefahrenhinweise)- und P- (Sicherheitshinweise) Sätzen vertraut zu machen.

### H-Sätze

#### Gefahrenhinweise für physikalische Gefahren

**H200**  
Instabil, explosiv.

**H201**  
Explosiv, Gefahr der Massenexplosion.

**H202**  
Explosiv; große Gefahr durch Splitter, Spreng- und Wurststücke.

**H203**  
Explosiv; Gefahr durch Feuer, Luftdruck oder Splitter, Spreng- und Wurststücke.

**H204**  
Gefahr durch Feuer oder Splitter, Spreng- und Wurststücke.

**H205**  
Gefahr der Massenexplosion bei Feuer.

**H220**  
Extrem entzündbares Gas.

**H221**  
Entzündbares Gas.

**H222**  
Extrem entzündbares Aerosol.

**H223**  
Entzündbares Aerosol.

**H224**  
Flüssigkeit und Dampf extrem entzündbar.

**H225**  
Flüssigkeit und Dampf leicht entzündbar.

**H226**  
Flüssigkeit und Dampf entzündbar.

**H227**  
Brennbare Flüssigkeit.

**H228**  
Entzündbarer Feststoff.

**H229**  
Behälter steht unter Druck: Kann bei Erwärmung bersten.

**H230**  
Explosionsgefahr selbst ohne Luftzufuhr.

**H231**  
Explosionsgefahr selbst ohne Luftzufuhr bei erhöhtem Druck und / oder erhöhter Temperatur.

**H240**  
Erwärmung kann Explosion verursachen.

**H241**  
Erwärmung kann Brand oder Explosion verursachen.

**H242**  
Erwärmung kann Brand verursachen.

**H250**  
Entzündet sich in Berührung mit Luft von selbst.

**H251**  
Selbsterhitzungsfähig; kann in Brand geraten.

**H252**  
In großen Mengen selbsterhitzungsfähig; kann in Brand geraten.

**H260**  
In Berührung mit Wasser entstehen entzündbare Gase, die sich spontan entzünden können.

**H261**  
In Berührung mit Wasser entstehen entzündbare Gase.

**H270**  
Kann Brand verursachen oder verstärken; Oxidationsmittel.

#### H271

Kann Brand oder Explosion verursachen; starkes Oxidationsmittel.

#### H272

Kann Brand verstärken; Oxidationsmittel.

#### H280

Enthält Gas unter Druck; kann bei Erwärmung explodieren.

#### H281

Enthält tiefkaltes Gas; kann Kälteverbrühungen oder -verletzungen verursachen.

#### H290

Kann gegenüber Metallen korrosiv sein.

#### Gefahrenhinweise für Gesundheitsgefahren

#### H300

Lebensgefahr bei Verschlucken.

#### H301

Giftig bei Verschlucken.

#### H302

Gesundheitsschädlich bei Verschlucken.

#### H303

Kann bei Verschlucken gesundheitsschädlich sein.

#### H304

Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

#### H3505

Kann beim Verschlucken und wenn es in die Atemwege gelangt gesundheitsschädlich sein.

#### H310

Lebensgefahr bei Hautkontakt.

#### H311

Giftig bei Hautkontakt.

#### H312

Gesundheitsschädlich bei Hautkontakt.

#### H313

Kann bei Berührung mit der Haut gesundheitsschädlich sein.

#### H314

Verursacht schwere Verätzungen der Haut und schwere Augenschäden.

#### H315

Verursacht Hautreizungen.

#### H316

Verursacht leichte Hautreizungen.

#### H317

Kann allergische Hautreaktionen verursachen.

#### H318

Verursacht schwere Augenschäden.

#### H319

Verursacht schwere Augenreizung.

#### H320

Verursacht Augenreizungen.

#### H330

Lebensgefahr bei Einatmen.

#### H331

Giftig bei Einatmen.

#### H332

Gesundheitsschädlich bei Einatmen.

#### H333

Kann beim Einatmen gesundheitsschädlich sein.

#### H334

Kann bei Einatmen Allergie, asthmaartige Symptome oder Atembeschwerden verursachen.

#### H335

Kann die Atemwege reizen.

#### H336

Kann Schläfrigkeit und Benommenheit verursachen.

#### H340

Kann genetische Defekte verursachen Expositionsweg angeben, sofern schlüssig belegt ist, dass diese Gefahr bei keinem anderen Expositionsweg besteht.

#### H341

Kann vermutlich genetische Defekte verursachen.

#### H350

Kann Krebs erzeugen.

#### H350i

Kann bei Einatmen Krebs erzeugen.

#### H351

Kann vermutlich Krebs erzeugen.

#### H351i

Kann bei Einatmen Krebs erzeugen.

#### H360

Kann die Fruchtbarkeit beeinträchtigen oder das Kind im Mutterleib schädigen.

#### H360D

Kann das Kind im Mutterleib schädigen.

#### H360Df

Kann das Kind im Mutterleib schädigen. Kann vermutlich die Fruchtbarkeit beeinträchtigen.

#### H360F

Kann die Fruchtbarkeit beeinträchtigen.

#### H360FD

Kann die Fruchtbarkeit beeinträchtigen. Kann das Kind im Mutterleib schädigen.

**H360Fd**

Kann die Fruchtbarkeit beeinträchtigen. Kann vermutlich das Kind im Mutterleib schädigen.

**H361**

Kann vermutlich die Fruchtbarkeit beeinträchtigen oder das Kind im Mutterleib schädigen.

**H361d**

Kann vermutlich das Kind im Mutterleib schädigen. **H361f**  
Kann vermutlich die Fruchtbarkeit beeinträchtigen.

**H361fd**

Kann vermutlich die Fruchtbarkeit beeinträchtigen. Kann vermutlich das Kind im Mutterleib schädigen.

**H362**

Kann Säuglinge über die Muttermilch schädigen.

**H370**

Schädigt die Organe.

**H371**

Kann die Organe schädigen.

**H372**

Schädigt die Organe bei längerer oder wiederholter Exposition.

**H373**

Kann die Organe schädigen bei längerer oder wiederholter Exposition.

**H300+H310**

Lebensgefahr bei Verschlucken oder Hautkontakt.

**H300+H310+H330**

Lebensgefahr bei Verschlucken, Hautkontakt oder Einatmen.

**H300+H330**

Lebensgefahr bei Verschlucken oder Einatmen.

**H301+H311**

Giftig bei Verschlucken oder Hautkontakt.

**H301+H311+H331**

Giftig bei Verschlucken, Hautkontakt oder Einatmen.

**H301+H331**

Giftig bei Verschlucken oder Einatmen.

**H302+H312**

Gesundheitsschädlich bei Verschlucken oder Hautkontakt.

**H302+H312+H332**

Gesundheitsschädlich bei Verschlucken, Hautkontakt oder Einatmen.

**H302+H332**

Gesundheitsschädlich bei Verschlucken oder Einatmen.

**H303+H313**

Kann beim Verschlucken oder bei Berührung mit der Haut gesundheitsschädlich sein.

**H303+H313+H333**

Kann beim Verschlucken, bei Berührung mit der Haut oder beim Einatmen gesundheitsschädlich sein.

**H303+H333**

Kann beim Verschlucken oder beim Einatmen gesundheitsschädlich sein.

**H310+H330**

Lebensgefahr bei Hautkontakt oder Einatmen.

**H311+H331**

Giftig bei Hautkontakt oder Einatmen.

**H312+H332**

Gesundheitsschädlich bei Hautkontakt oder Einatmen.

**H313+H333**

Kann bei Berührung mit der Haut oder beim Einatmen gesundheitsschädlich sein.

**H315+H320**

Verursacht Haut- und Augenreizungen.

**Gefahrenhinweise für Umweltgefahren****H400**

Sehr giftig für Wasserorganismen.

**H401**

Giftig für Wasserorganismen.

**H402**

Schädlich für Wasserorganismen.

**H410**

Sehr giftig für Wasserorganismen mit langfristiger Wirkung.

**H411**

Giftig für Wasserorganismen, mit langfristiger Wirkung.

**H412**

Schädlich für Wasserorganismen, mit langfristiger Wirkung.

**H413**

Kann für Wasserorganismen schädlich sein, mit langfristiger Wirkung.

**H420**

Schädigt die öffentliche Gesundheit und die Umwelt durch Ozonabbau in der äußeren Atmosphäre.

**EUH-Sätze****Ergänzende Gefahrenmerkmale****EUH001**

In trockenem Zustand explosionsgefährlich. **EUH006**  
Mit und ohne Luft explosionsfähig.

**EUH014**

Reagiert heftig mit Wasser.

**EUH018**

Kann bei Verwendung explosionsfähige/entzündbare Dampf/**Luft-Gemische bilden.**

**EUH019**

Kann explosionsfähige Peroxide bilden.

**EUH029**

Entwickelt bei Berührung mit Wasser giftige Gase.

**EUH031**

Entwickelt bei Berührung mit Säure giftige Gase.

**EUH032**

Entwickelt bei Berührung mit Säure sehr giftige Gase.

**EUH044**

Explosionsgefahr bei Erhitzen unter Einschluss.

**EUH059**

Die Ozonschicht schädigend.

**EUH066**

Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.

**EUH070**

Giftig bei Berührung mit den Augen.

**EUH071**

Wirkt ätzend auf die Atemwege.

**P-Sätze****Sicherheitshinweise****P101**

Ist ärztlicher Rat erforderlich, Verpackung oder Etikett bereithalten.

**P102**

Darf nicht in die Hände von Kindern gelangen.

**P103**

Vor Gebrauch Kennzeichnungsetikett lesen.

**P201**

Vor Gebrauch besondere Anweisungen einholen.

**P202**

Vor Gebrauch alle Sicherheitsratschläge lesen und verstehen.

**P210**

Von Hitze/Funken/offener Flamme/heißen Oberflächen fernhalten. Nicht rauchen.

**P210a**

Von Hitze fernhalten. Nicht rauchen.

**P210b**

Von Funken fernhalten. Nicht rauchen.

**P210c**

Von offener Flamme fernhalten. Nicht rauchen.

**P210d**

Von heißen Oberflächen fernhalten. Nicht rauchen.

**P211**

Nicht gegen offene Flamme oder andere Zündquelle sprühen.

**P220**

Von Kleidung/brennbaren Materialien fernhalten/entfernt aufbewahren.

**P220a**

Von Kleidung fernhalten.

**P220b**

Von brennbaren Materialien fernhalten.

**P220c**

Von Reduktionsmitteln, Schwermetallverbindungen, Säuren und Alkalien fernhalten.

**P220d**

Von oxidierenden und sauren Stoffen, sowie Schwermetallverbindungen fernhalten.

**P220e**

Von Eisen fernhalten.

**P220f**

Von Wasser fernhalten.

**P220g**

Von Säuren fernhalten.

**P220h**

Von Laugen fernhalten

**P220i**

Von Metallen fernhalten.

**P220j**

Von oxidierenden und sauren Stoffen fernhalten.

**P220k**

Von brennbaren organischen Substanzen fernhalten.

**P220l**

Von Säuren, Reduktionsmitteln und brennbaren Materialien fernhalten.

**P221**

Mischen mit brennbaren Stoffen unbedingt verhindern.

**P222**

Kontakt mit Luft nicht zulassen.

**P223**

Kontakt mit Wasser wegen heftiger Reaktion und möglichem Aufflammen unbedingt verhindern.

**P230**

Feucht halten mit ...

**P230a**

Feucht halten.

**P231**

Unter inertem Gas handhaben.

**P232**

Vor Feuchtigkeit schützen.

**P233**

Behälter dicht verschlossen halten.

**P234**

Nur im Originalbehälter aufbewahren.

**P235**

Kühl halten.

**P240**

Behälter und zu befüllende Anlage erden.

**P241**

Explosionsschutz elektrische Betriebsmittel/Lüftungsanlagen/Beleuchtung/verwenden

**P242**

Nur funkenfreies Werkzeug verwenden.

**P243**

Maßnahmen gegen elektrostatische Aufladungen treffen.

**P244**

Druckminderer frei von Fett und Öl halten.

**P250**

Nicht schleifen/stoßen/reiben.

**P251**

Behälter steht unter Druck: Nicht durchstechen oder verbrennen, auch nicht nach der Verwendung.

**P260**

Staub/Rauch/Gas/Nebel/Dampf/Aerosol nicht einatmen.

**P260a**

Staub nicht einatmen.

**P260b**

Rauch nicht einatmen.

**P260c**

Gas nicht einatmen.

**P260d**

Nebel nicht einatmen.

**P260e**

Dampf nicht einatmen.

**P260f**

Aerosol nicht einatmen.

**P260g**

Nebel/Dampf/Aerosol nicht einatmen.

**P261**

Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.

**P261a**

Einatmen von Staub vermeiden.

**P261b**

Einatmen von Rauch vermeiden.

**P261c**

Einatmen von Gas vermeiden.

**P261d**

Einatmen von Nebel vermeiden.

**P261e**

Einatmen von Dampf vermeiden.

**P261f**

Einatmen von Aerosol vermeiden.

**P261g**

Einatmen von Nebel/Dampf/Aerosol vermeiden.

**P262**

Nicht in die Augen, auf die Haut oder auf die Kleidung gelangen lassen.

**P263**

Kontakt während der Schwangerschaft/und der Stillzeit vermeiden.

**P264**

Nach Gebrauch gründlich waschen.

**P270**

Bei Gebrauch nicht essen, trinken oder rauchen.

**P271**

Nur im Freien oder in gut belüfteten Räumen verwenden.

**P272**

Kontaminierte Arbeitskleidung nicht außerhalb des Arbeitsplatzes tragen.

**P273**

Freisetzung in die Umwelt vermeiden.

**P280**

Schutzhandschuhe/Schutzkleidung/Augenschutz/Gesichtsschutz tragen.

**P280a**

Schutzhandschuhe und Augenschutz / Gesichtsschutz tragen.

**P280b**

Schutzhandschuhe und Augenschutz tragen.

**P280c**  
Schutzhandschuhe und Gesichtsschutz tragen.

**P280d**  
Schutzkleidung und Augenschutz tragen.

**P280e**  
Schutzkleidung und Gesichtsschutz tragen.

**P280f**  
Schutzkleidung tragen.

**P280g**  
Schutzhandschuhe tragen.

**P280h**  
Schutzhandschuhe / Schutzkleidung tragen.

**P280i**  
Augenschutz / Gesichtsschutz tragen.

**P280j**  
Gesichtsschutz tragen.

**P282**  
Schutzhandschuhe/Gesichtsschild/Augenschutz mit Kälteisolierung tragen.

**P283**  
Schwer entflammbare/flammhemmende Kleidung tragen.

**P284**  
Atemschutz tragen.

**P231**  
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

**P232**  
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

**P235**  
Kühl halten. Vor Sonnenbestrahlung schützen.

**P410**  
Kühl halten. Vor Sonnenbestrahlung schützen.

**P301**  
BEI VERSCHLUCKEN:

**P302**  
BEI BERÜHRUNG MIT DER HAUT:

**P303**  
BEI BERÜHRUNG MIT DER HAUT (oder dem Haar):

**P304**  
BEI EINATMEN:

**P305**  
BEI KONTAKT MIT DEN AUGEN:

**P306**  
BEI KONTAMINierter KLEIDUNG:

**P308**  
BEI Exposition oder falls betroffen

**P310**  
Sofort GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P311**  
GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P312**  
Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P313**  
Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P314**  
Bei Unwohlsein ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P315**  
Sofort ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P320**  
Besondere Behandlung dringend erforderlich (siehe ... auf diesem Kennzeichnungsetikett).

**P321**  
Besondere Behandlung (siehe ... auf diesem Kennzeichnungsetikett).

**P330**  
Mund ausspülen.

**P331**  
KEIN Erbrechen herbeiführen.

**P332**  
Bei Hautreizung:

**P333**  
Bei Hautreizung oder -ausschlag:

**P334**  
In kaltes Wasser tauchen/nassen Verband anlegen.

**P335**  
Lose Partikel von der Haut abbürsten.

**P336**  
Vereiste Bereiche mit lauwarmem Wasser auftauen. Betroffenen Bereich nicht reiben.

**P337**  
Bei anhaltender Augenreizung:

**P338**  
Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen.

**P340**  
Die betroffene Person an die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert.

**P342**  
Bei Symptomen der Atemwege:

**P351**  
Einige Minuten lang behutsam mit Wasser ausspülen.

**P352**  
Mit viel Wasser und Seife waschen.

**P353**  
Haut mit Wasser abwaschen/duschen.

**P360**  
Kontaminierte Kleidung und Haut sofort mit viel Wasser abwaschen und danach Kleidung ausziehen.

**P361**  
Alle kontaminierten Kleidungsstücke sofort ausziehen.

**P362**  
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

**P363**  
Kontaminierte Kleidung vor erneutem Tragen waschen.

**P364**  
Und vor erneutem Tragen waschen.

**P370**  
Bei Brand:

**P371**  
Bei Großbrand und großen Mengen:

**P372**  
Explosionsgefahr bei Brand.

**P373**  
KEINE Brandbekämpfung, wenn das Feuer explosive Stoffe/Gemische/Erzeugnisse erreicht.

**P374**  
Brandbekämpfung mit üblichen Vorsichtsmaßnahmen aus angemessener Entfernung.

**P375**  
Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

**P376**  
Undichtigkeit beseitigen, wenn gefahrlos möglich.

**P377**  
Brand von ausströmendem Gas:  
Nicht löschen, bis Undichtigkeit gefahrlos beseitigt werden kann.

**P378**  
... zum Löschen verwenden.

**P378a**  
Zum Löschen verwenden: CO<sub>2</sub>, Löschpulver oder Wassersprühstrahl.

**P378b**  
Zum Löschen verwenden: Spezialpulver für Metallbrände.

**P378c**  
Zum Löschen verwenden: CO<sub>2</sub>, Sand, Löschpulver.

**P378d**  
Zum Löschen verwenden: Wasser.

**P378e**  
Zum Löschen verwenden: Wasserdampf.

**P378f**  
Zum Löschen verwenden: Wassersprühstrahl.

**P378g**  
Zum Löschen verwenden: Schaum.

**P378h**  
Zum Löschen verwenden: Alkoholbeständiger Schaum.

**P378i**  
Zum Löschen verwenden: Löschpulver.

**P378j**  
Zum Löschen verwenden: BC-Pulver.

**P378k**  
Zum Löschen verwenden: ABC-Pulver.

**P378l**  
Zum Löschen verwenden: Kohlendioxid.

**P378m**  
Zum Löschen verwenden: Kalksteinpulver.

**P378n**  
Zum Löschen verwenden: Zement.

**P378o**  
Zum Löschen verwenden: Sand.

**P378p**  
Zum Löschen verwenden: Trockener Sand.

**P380**  
Umgebung räumen.

**P381**  
Alle Zündquellen entfernen, wenn gefahrlos möglich.

**P390**  
Verschüttete Mengen aufnehmen, um Materialschäden zu vermeiden.

**P391**  
Verschüttete Mengen aufnehmen.

**P301 + P310**  
BEI VERSCHLUCKEN: Sofort GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P301 + P312**  
BEI VERSCHLUCKEN: Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P301 + P330 + P331**  
BEI VERSCHLUCKEN: Mund ausspülen. KEIN Erbrechen herbeiführen.

**P302 + P334**  
BEI KONTAKT MIT DER HAUT: In kaltes Wasser tauchen/nassen Verband anlegen.

**P302 + P352**  
BEI KONTAKT MIT DER HAUT: Mit viel Wasser und Seife waschen.

**P303 + P361 + P353**  
BEI KONTAKT MIT DER HAUT (oder dem Haar): Alle beschmutzten, getränkten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen/duschen.

**P304 + P312**  
BEI EINATMEN: Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P304 + P340**  
BEI EINATMEN: An die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert.

**P305 + P351 + P338**  
BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.

**P306 + P360**  
BEI KONTAKT MIT DER KLEIDUNG: Kontaminierte Kleidung und Haut sofort mit viel Wasser abwaschen und danach Kleidung ausziehen.

**P308 + P313**  
BEI Exposition oder falls betroffen: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P231+P232**  
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

**P332 + P313**  
Bei Hautreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P333 + P313**  
Bei Hautreizung oder -ausschlag: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P335 + P334**  
Lose Partikel von der Haut abbürsten. In kaltes Wasser tauchen/nassen Verband anlegen.

**P235+P410**  
Kühl halten. Vor Sonnenbestrahlung schützen.

**P337 + P313**  
Bei anhaltender Augenreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

**P342 + P311**  
Bei Symptomen der Atemwege: GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

**P361+P364**  
Alle kontaminierten Kleidungsstücke sofort ausziehen und vor erneutem Tragen waschen.

**P362+P364**  
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

**P370 + P376**  
Bei Brand: Undichtigkeit beseitigen, wenn gefahrlos möglich.

**P370 + P378**  
Bei Brand: ... zum Löschen verwenden.

**P370+P378a**  
Bei Brand: Zum Löschen verwenden: CO<sub>2</sub>, Löschpulver oder Wassersprühstrahl.

**P370+P378b**  
Bei Brand: Zum Löschen verwenden: Spezialpulver für Metallbrände.

**P370+P378c**  
Bei Brand: Zum Löschen verwenden: CO<sub>2</sub>, Sand, Löschpulver.

**P370+P378d**  
Bei Brand: Zum Löschen verwenden: Wasser.

**P370+P378e**  
Bei Brand: Zum Löschen verwenden: Wasserdampf.

**P370+P378f**  
Bei Brand: Zum Löschen verwenden: Wassersprühstrahl.

**P370+P378g**  
Bei Brand: Zum Löschen verwenden: Schaum.

**P370+P378h**  
Bei Brand: Zum Löschen verwenden: Alkoholbeständiger Schaum.

**P370+P378i**  
Bei Brand: Zum Löschen verwenden: Löschpulver.

**P370+P378j**  
Bei Brand: Zum Löschen verwenden: BC-Pulver.

**P370+P378k**  
Bei Brand: Zum Löschen verwenden: ABC-Pulver.

**P370+P378l**  
Bei Brand: Zum Löschen verwenden: Kohlendioxid.

**P370+P378m**  
Bei Brand: Zum Löschen verwenden: Kalksteinpulver.

**P370+P378n**  
Bei Brand: Zum Löschen verwenden: Zement.

**P370+P378o**  
Bei Brand: Zum Löschen verwenden: Sand.

**P370+P378p**  
Bei Brand: Zum Löschen verwenden: Trockener Sand.

**P370 + P380**  
Bei Brand: Umgebung räumen.

**P370 + P380 + P375**  
Bei Brand: Umgebung räumen. Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

## **P371 + P380 + P375**

Bei Großbrand und großen Mengen: Umgebung räumen. Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

## **P401**

... aufbewahren.

## **P401a**

Gemäß örtlicher/regionaler/nationaler/internationaler Vorschrift lagern.

## **P402**

An einem trockenen Ort aufbewahren.

## **P403**

An einem gut belüfteten Ort aufbewahren.

## **P404**

In einem geschlossenen Behälter aufbewahren.

## **P405**

Unter Verschluss aufbewahren.

## **P406**

In korrosionsbeständigem Behälter mit korrosionsbeständiger Auskleidung aufbewahren.

## **P407**

Luftspalt zwischen Stapeln/Paletten lassen.

## **P410**

Vor Sonnenbestrahlung schützen.

## **P411**

Bei Temperaturen von nicht mehr als ... °C/... °F aufbewahren.

## **P411a**

Bei Temperaturen von nicht mehr als ... °C aufbewahren.

## **P411b**

Bei Temperaturen von nicht mehr als... °F aufbewahren.

## **P412**

Nicht Temperaturen von mehr als 50 °C aussetzen.

## **P413**

Schüttgut in Mengen von mehr als ... kg/ ...lbs bei Temperaturen von nicht mehr als ... °C/ ...°F aufbewahren

## **P413a**

Schüttgut in Mengen von mehr als ... kg bei Temperaturen von nicht mehr als ... °C aufbewahren.

## **P413b**

Schüttgut in Mengen von mehr als ...lbs bei Temperaturen von nicht mehr als ...°F aufbewahren.

## **P420**

Von anderen Materialien entfernt aufbewahren.

## **P420a**

Von Lebensmitteln getrennt lagern.

## **P420b**

Von brennbaren Stoffen getrennt lagern.

## **P420c**

Von Oxidationsmitteln getrennt lagern.

## **P420d**

Von Reduktionsmitteln getrennt lagern.

## **P420e**

Von Wasser getrennt lagern.

## **P420f**

Von Metallen getrennt lagern.

## **P420g**

Von Säuren getrennt lagern.

## **P420h**

Von Laugen getrennt lagern.

## **P422**

Inhalt in/unter ... aufbewahren

## **P422a**

Inhalte unter Inertgas aufbewahren.

## **P422b**

Inhalte unter Schutzgas aufbewahren.

## **P422c**

Inhalte unter Lösemittel aufbewahren.

## **P422d**

Unter Wasser aufbewahren.

## **P422e**

Unter Petroleum aufbewahren.

## **P422f**

Unter Stickstoff aufbewahren.

## **P402 + P404**

In einem geschlossenen Behälter an einem trockenen Ort aufbewahren.

## **P403+P233**

Behälter dicht verschlossen an einem gut belüfteten Ort aufbewahren.

## **P403+P235**

Kühl an einem gut belüfteten Ort aufbewahren.

## **P410+P403**

Vor Sonnenbestrahlung geschützt an einem gut belüfteten Ort aufbewahren.

## **P410+P412**

Vor Sonnenbestrahlung schützen und nicht Temperaturen von r als 50 °C aussetzen.

## **P411+P235**

Kühl und bei Temperaturen von nicht mehr als ...°C/ ...°F aufbewahren.

## **P411a+P235**

Kühl und bei Temperaturen von nicht mehr als ...°C aufbewahren.

## **P411b+P235**

Kühl und bei Temperaturen von nicht mehr als ...°F aufbewahren.

## **P501**

Inhalt/Behälter ... zuführen.

















## **P501a**

Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen/ internationalen Vorschriften.

## **P502**

Informationen zur Wiederverwendung/Wiederverwertung beim Hersteller/Lieferanten erfragen

## Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Danger		GHS01	H200, H201, H202, H203, H240, H241
Warning		GHS01	H204
Danger		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Warning		GHS02	H223, H226, H228, H229, H242, H252, H261
Warning	No Pictogram		H221, H229
Danger		GHS03	H270, H271, H272
Warning		GHS03	H272
Warning		GHS04	H280, H281
Danger		GHS06	H300, H310, H330, H301, H311, H331
Warning		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370, H372, H334, H304
Warning		GHS08	H341, H351, H361, H371, H373
Danger		GHS05	H314, H318
Warning		GHS05	H290
Warning		GHS07	H315, H319, H317, H335, H336, H420
Warning		GHS09	H400, H410
No Signal Word		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

## H-Codes

### Hazard statements for physical hazards

**H200**  
Unstable explosives.

**H201**  
Explosive; mass explosion hazard.

**H202**  
Explosive, severe projection hazard.

**H203**  
Explosive; fire, blast or projection hazard.

**H204**  
Fire or projection hazard.

**H205**  
May mass explode in fire.

**H220**  
Extremely flammable gas.

**H221**  
Flammable gas.

**H222**  
Extremely flammable aerosol.

**H223**  
Flammable aerosol.

**H224**  
Extremely flammable liquid and vapour.

**H225**  
Highly flammable liquid and vapour.

**H226**  
Flammable liquid and vapour.

**H227**  
Combustible liquid.

**H228**  
Flammable solid.

**H229**  
Pressurised container: May burst if heated.

**H230**  
May react explosively even in the absence of air.

**H231**  
May react explosively even in the absence of air at elevated pressure and / or temperature.

**H240**  
Heating may cause an explosion.

**H241**  
Heating may cause a fire or explosion.

**H242**  
Heating may cause a fire.

**H250**  
Catches fire spontaneously if exposed to air.

**H251**  
Self-heating; may catch fire.

**H252**  
Self-heating in large quantities; may catch fire.

**H260**  
In contact with water releases flammable gases which may ignite spontaneously.

**H261**  
In contact with water releases flammable gases.

**H270**  
May cause or intensify fire; oxidiser.

**H271**  
May cause fire or explosion; strong oxidiser.

**H272**  
May intensify fire; oxidiser.

**H280**  
Contains gas under pressure; may explode if heated.

**H281**  
Contains refrigerated gas; may cause cryogenic burns or injury.

**H290**  
May be corrosive to metals.

### Hazard statements for health hazards

**H300**  
Fatal if swallowed.

**H301**  
Toxic if swallowed.

**H302**  
Harmful if swallowed.

**H303**  
May be harmful if swallowed.

**H304**  
May be fatal if swallowed and enters airways.

**H305**  
May be harmful if swallowed and enters airways.

**H310**  
Fatal in contact with skin.

**H311**  
Toxic in contact with skin.

**H312**  
Harmful in contact with skin.

**H313**  
May be harmful in contact with skin.

**H314**  
Causes severe skin burns and eye damage.

**H315**  
Causes skin irritation.

**H316**  
Causes mild skin irritation.

**H317**  
May cause an allergic skin reaction.

**H318**  
Causes serious eye damage.

**H319**  
Causes serious eye irritation.

**H320**  
Causes eye irritation.

**H330**  
Fatal if inhaled.

**H331**  
Toxic if inhaled.

**H332**  
Harmful if inhaled.

**H333**  
May be harmful if inhaled.

**H334**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**H335**  
May cause respiratory irritation.

**H336**  
May cause drowsiness or dizziness.

**H340**  
May cause genetic defects.

**H341**  
Suspected of causing genetic defects.

**H350**  
May cause cancer.

**H350i**  
May cause cancer by inhalation.

**H351**  
Suspected of causing cancer.

**H351i**  
Suspected of causing cancer by inhalation.

**H360**  
May damage fertility or the unborn child.

**H360D**  
May damage the unborn child.

**H360Df**  
May damage the unborn child. Suspected of damaging fertility.

**H360F**  
May damage fertility.

**H360FD**  
May damage fertility. May damage the unborn child.

**H360Fd**  
May damage fertility. Suspected of damaging the unborn child.

**H361**  
Suspected of damaging fertility or the unborn child.

**H361d**  
Suspected of damaging the unborn child.

**H361f**  
Suspected of damaging fertility.

**H361fd**  
Suspected of damaging fertility. Suspected of damaging the unborn child.

**H362**  
May cause harm to breast-fed children.

**H370**  
Causes damage to organs.

**H371**  
May cause damage to organs.

**H372**  
Causes damage to organs.

**H373**  
May cause damage to organs through prolonged or repeated exposure.



## H300+H310

Fatal if swallowed or in contact with skin.

## H300+H310+H330

Fatal if swallowed, in contact with skin or if inhaled.

## H300+H330

Fatal if swallowed or if inhaled.

## H301+H311

Toxic if swallowed or in contact with skin.

## H301+H311+H331

Toxic if swallowed, in contact with skin or if inhaled.

## H301+H331

Toxic if swallowed or if inhaled.

## H302+H312

Harmful if swallowed or in contact with skin.

## H302+H312+H332

Harmful if swallowed, in contact with skin or if inhaled.

## H302+H332

Harmful if swallowed or if inhaled.

## H303+H313

May be harmful if swallowed or in contact with skin.

## H303+H313+H333

May be harmful if swallowed, in contact with skin or if inhaled.

## H303+H333

May be harmful if swallowed or if inhaled.

## H310+H330

Fatal in contact with skin or if inhaled.

## H311+H331

Toxic in contact with skin or if inhaled.

## H312+H332

Harmful in contact with skin or if inhaled.

## H313+H333

May be harmful in contact with skin or if inhaled.

## H315+H320

Causes skin and eye irritation.

## Hazard statements for environmental hazards

### H400

Very toxic to aquatic life.

### H401

Toxic to aquatic life.

### H402

Harmful to aquatic life.

### H410

Very toxic to aquatic life with long lasting effects.

### H411

Toxic to aquatic life with long lasting effects.

### H412

Harmful to aquatic life with long lasting effects.

### H413

May cause long lasting harmful effects to aquatic life.

### H420

Harms public health and the environment by destroying ozone in the upper atmosphere

## EUH-Codes

### Supplemental hazard informations

#### EUH 001

Explosive when dry.

#### EUH 006

Explosive with or without contact with air.

#### EUH 014

Reacts violently with water.

#### EUH 018

In use may form flammable/explosive vapour-air mixture.

#### EUH 019

May form explosive peroxides.

#### EUH029

Contact with water liberates toxic gas.

#### EUH031

Contact with acids liberates toxic gas.

#### EUH032

Contact with acids liberates very toxic gas.

#### EUH 044

Risk of explosion if heated under confinement.

#### EUH 059

Hazardous to the ozone layer.

#### EUH 066

Repeated exposure may cause skin dryness or cracking.

#### EUH 070

Toxic by eye contact.

#### EUH 071

Corrosive to the respiratory tract.

## P-Codes

### P101

If medical advice is needed, have product container or label at hand.

### P102

Keep out of reach of children.

### P103

Read label before use.

### P201

Obtain special instructions before use.

### P202

Do not handle until all safety precautions have been read and understood.

### P210

Keep away from heat/sparks/open flames/hot surfaces. ...

### P210a

Keep away from heat. - No smoking.

### P210b

Keep away from sparks. - No smoking.

### P210c

Keep away from open flames. - No smoking.

### P210d

Keep away from hot surfaces. - No smoking.

### P211

Do not spray on an open flame or other ignition source.

### P220

Keep/Store away from clothing/.../combustible materials.

### P220a

Keep away from clothing.

### P220b

Keep away from combustible materials.

### P220c

Keep away from reducing agents, heavy metal compounds, acids and alkalis.

### P220d

Keep away from oxidising and acidic substances, as well as heavy metal compounds.

### P220e

Keep away from iron.

### P220f

Keep away from water.

### P220g

Keep away from acids.

### P220h

Keep away from alkaline solutions.

### P220i

Keep away from metals.

### P220j

Keep away from oxidising agents and acidic substances.

### P220k

Keep away from flammable organic substances.

### P220l

Keep away from acids, reducing agents and flammable materials.

### P221

Take any precaution to avoid mixing with combustibles...

### P222

Do not allow contact with air.

### P223

Keep away from any possible contact with water, because of violent reaction and possible flash fire.

### P230

Keep wetted with...

### P230a

Keep wetted.

### P231

Handle under inert gas.

### P232

Protect from moisture.

### P233

Keep container tightly closed.

### P234

Keep only in original container.

### P235

Keep cool.

### P240

Ground/bond container and receiving equipment.

### P241

Use explosion-proof electrical/ventilating/lighting/.../ equipment.

### P242

Use only non-sparking tools.

### P243

Take precautionary measures against static discharge.

### P244

Keep reduction valves free from grease and oil.

### P250

Do not subject to grinding/shock/.../friction.

### P251

Pressurized container: Do not pierce or burn, even after use.

### P260

Do not breathe dust/fume/gas/mist/vapours/spray.

### P260a

Do not breathe dust.

### P260b

Do not breathe fume.

### P260c

Do not breathe gas.

### P260d

Do not breathe mist.

### P260e

Do not breathe vapours.

### P260f

Do not breathe spray.

### P260g

Do not breathe mist/vapours/spray.

### P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

### P261a

Avoid breathing dust.

### P261b

Avoid breathing fume.

### P261c

Avoid breathing gas.

### P261d

Avoid breathing mist.

### P261e

Avoid breathing vapours.

### P261f

Avoid breathing spray.

### P261g

Avoid breathing mist/vapours/spray.

### P262

Do not get in eyes, on skin, or on clothing.

### P263

Avoid contact during pregnancy/while nursing.

### P264

Wash ... thoroughly after handling.

### P270

Do not eat, drink or smoke when using this product.

### P271

Use only outdoors or in a well-ventilated area.

### P272

Contaminated work clothing should not be allowed out of the workplace.

### P273

Avoid release to the environment.

### P280

Wear protective gloves/protective clothing/eye protection/ face protection.

### P280a

Wear protective gloves / eye protection / face protection.

### P280b

Wear protective gloves / eye protection.

### P280c

Wear protective gloves / face protection.

### P280d

Wear protective clothing / eye protection.

### P280e

Wear protective clothing / face protection.

### P280f

Wear protective clothing.

### P280g

Wear protective gloves.

### P280h

Wear protective gloves / protective clothing.

### P280i

Wear protective gloves / protective clothing.

### P280j

Wear face protection.

### P282

Wear cold insulating gloves/face shield/eye protection.

### P283

Wear fire/flame resistant/retardant clothing.

### P284

Wear respiratory protection.

### P301

IF SWALLOWED:

### P302

IF ON SKIN:

### P303

IF ON SKIN (or hair):

### P304

IF INHALED:

### P305

IF IN EYES:

### P306

IF ON CLOTHING:

### P308

IF exposed or concerned:

### P310

Immediately call a POISON CENTER or doctor/physician.

### P311

Call a POISON CENTER or doctor/physician.

### P312

Call a POISON CENTER or doctor/physician if you feel unwell.

### P313

Get medical advice/attention.

### P314

Get medical advice/attention if you feel unwell.

### P315

Get immediate medical advice/attention.

### P320

Specific treatment is urgent (see ... on this label).

### P321

Specific treatment (see ... on this label).

### P330

Rinse mouth.

### P331

Do NOT induce vomiting.

**P332**  
If skin irritation occurs:  
**P333**  
If skin irritation or rash occurs:  
**P334**  
Immerse in cool water/wrap in wet bandages.  
**P335**  
Brush off loose particles from skin.  
**P336**  
Thaw frosted parts with lukewarm water. Do not rub affected area.  
**P337**  
If eye irritation persists:  
**P338**  
Remove contact lenses, if present and easy to do. Continue rinsing.  
**P340**  
Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
**P342**  
If experiencing respiratory symptoms:  
**P351**  
Rinse cautiously with water for several minutes.  
**P352**  
Wash with plenty of soap and water.  
**P353**  
Rinse skin with water/shower.  
**P360**  
Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.  
**P361**  
Remove/Take off immediately all contaminated clothing.  
**P362**  
Take off contaminated clothing and wash before reuse.  
**P363**  
Wash contaminated clothing before reuse.  
**P364**  
And wash it before reuse.  
**P370**  
In case of fire:  
**P371**  
In case of major fire and large quantities:  
**P372**  
Explosion risk in case of fire.  
**P373**  
DO NOT fight fire when fire reaches explosives.  
**P374**  
Fight fire with normal precautions from a reasonable distance  
**P375**  
Fight fire remotely due to the risk of explosion.  
**P376**  
Stop leak if safe to do so.  
**P377**  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
**P378**  
Use ... for extinction.  
**P378a**  
Use for extinction: CO<sub>2</sub>, powder or water spray.  
**P378b**  
Use for extinction: Special powder for metal fires.  
**P378c**  
Use for extinction: CO<sub>2</sub>, sand, extinguishing powder.  
**P378d**  
Use for extinction: Water.  
**P378e**  
Use for extinction: Water haze.  
**P378f**  
Use for extinction: Water spray.  
**P378g**  
Use for extinction: Foam.  
**P378h**  
Use for extinction: Alcohol resistant foam.  
**P378i**  
Use for extinction: Fire-extinguishing powder.  
**P378j**  
Use for extinction: BC powder.  
**P378k**  
Use for extinction: ABC powder.  
**P378l**  
Use for extinction: Carbon dioxide.  
**P378m**  
Use for extinction: Limestone powder.  
**P378n**  
Use for extinction: Cement.  
**P378o**  
Use for extinction: Sand.  
**P378p**  
Use for extinction: Dry sand.  
**P380**  
Evacuate area.  
**P381**  
Eliminate all ignition sources if safe to do so.  
**P390**  
Absorb spillage to prevent material damage.  
**P391**  
Collect spillage.

**P231+P232**  
Handle under inert gas. Protect from moisture.  
**P235+P410**  
Keep cool. Protect from sunlight.  
**P301 + P310**  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
**P301 + P312**  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
**P301 + P330 + P331**  
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
**P302 + P334**  
IF ON SKIN: Immerse in cool water/wrap in wet bandages.  
**P302 + P352**  
IF ON SKIN: Wash with plenty of soap and water.  
**P303 + P361 + P353**  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
**P304+P312**  
IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.  
**P304 + P340**  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
**P305 + P351 + P338**  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**P306 + P360**  
IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.  
**P307 + P311**  
IF exposed: Call a POISON CENTER or doctor/physician.  
**P308 + P313**  
IF exposed or concerned: Get medical advice/attention.  
**P332 + P313**  
If skin irritation occurs: Get medical advice/attention.  
**P333 + P313**  
If skin irritation or rash occurs: Get medical advice/attention.  
**P335 + P334**  
Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.  
**P337 + P313**  
If eye irritation persists: Get medical advice/attention.  
**P342 + P311**  
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.  
**P361+P364**  
Take off immediately all contaminated clothing and wash it before reuse.  
**P362+P364**  
Take off contaminated clothing and wash it before reuse.  
**P370 + P376**  
In case of fire: Stop leak if safe to do so.  
**P370 + P378**  
In case of fire: Use ... for extinction.  
**P370+P378a**  
In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
**P370+P378b**  
In case of fire: Use for extinction: Special powder for metal fires.  
**P370+P378c**  
In case of fire: Use for extinction: CO<sub>2</sub>, sand, extinguishing powder.  
**P370+P378d**  
In case of fire: Use for extinction: Water.  
**P370+P378e**  
In case of fire: Use for extinction: Water haze.  
**P370+P378f**  
In case of fire: Use for extinction: Water spray.  
**P370+P378g**  
In case of fire: Use for extinction: Foam.  
**P370+P378h**  
In case of fire: Use for extinction: Alcohol resistant foam.  
**P370+P378i**  
In case of fire: Use for extinction: Fire-extinguishing powder.  
**P370+P378j**  
In case of fire: Use for extinction: BC powder.  
**P370+P378k**  
In case of fire: Use for extinction: ABC powder.  
**P370+P378l**  
In case of fire: Use for extinction: Carbon dioxide.  
**P370+P378m**  
In case of fire: Use for extinction: Limestone powder.  
**P370+P378n**  
In case of fire: Use for extinction: Cement.  
**P370+P378o**  
In case of fire: Use for extinction: Sand.  
**P370+P378p**  
In case of fire: Use for extinction: Dry sand.  
**P370 + P380**  
In case of fire: Evacuate area.  
**P370 + P380 + P375**  
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

**P371 + P380 + P375**  
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.  
**P401**  
Store ...  
**P401a**  
Store in accordance with local/regional/national/international regulations.  
**P402**  
Store in a dry place.  
**P403**  
Store in a well-ventilated place.  
**P404**  
Store in a closed container.  
**P405**  
Store locked up.  
**P406**  
Store in corrosive resistant/... container with a resistant inner liner.  
**P407**  
Maintain air gap between stacks/pallets.  
**P410**  
Protect from sunlight.  
**P411**  
Store at temperatures not exceeding ... °C/...°F.  
**P411a**  
Store at temperatures not exceeding... °C.  
**P411b**  
Store at temperatures not exceeding...°F.  
**P412**  
Do not expose to temperatures exceeding 50 °C/122 °F.  
**P413**  
Store bulk masses greater than ... kg/... lbs at temperatures not exceeding ... °C/...°F.  
**P413a**  
Store bulk masses greater than ...kg at temperatures not exceeding ...°C.  
**P413b**  
Store bulk masses greater than ...lbs at temperatures not exceeding ...°F.  
**P420**  
Store away from other materials.  
**P420a**  
Store away from foodstuffs.  
**P420b**  
Store away from flammable substances.  
**P420c**  
Store away from oxidizing agents.  
**P420d**  
Store away from reducing agents.  
**P420e**  
Store away from water.  
**P420f**  
Store away from metals.  
**P420g**  
Store away from acids.  
**P420h**  
Store away from caustic solutions.  
**P422**  
Store contents under ...  
**P422a**  
Store contents under inert gas.  
**P422b**  
Store contents under protective gas.  
**P422c**  
Store contents under solvent.  
**P422d**  
Store under water.  
**P422e**  
Store in petroleum.  
**P422f**  
Store in nitrogen.  
**P402 + P404**  
Store in a dry place. Store in a closed container.  
**P403 + P233**  
Store in a well-ventilated place. Keep container tightly closed.  
**P403 + P235**  
Store in a well-ventilated place. Keep cool.  
**P410 + P403**  
Protect from sunlight. Store in a well-ventilated place.  
**P410 + P412**  
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.  
**P411 + P235**  
Store at temperatures not exceeding ... °C/... °F. Keep cool.  
**P411a+P235**  
Store at temperatures not exceeding ...°C. Keep cool.  
**P411b+P235**  
Store at temperatures not exceeding ...°F. Keep cool.  
**P501**  
Dispose of contents/container to ...  
**P501a**  
Dispose of contents/container in accordance with local/regional/national/international regulations.  
**P502**  
Refer to manufacturer/supplier for information on recovery/recycling.

## Système général harmonisé de classification et d'étiquetage des produits chimiques. (SGH)

Danger		GHS01	H200, H201, H202, H203, H240, H241
Attention		GHS01	H204
Danger		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Attention		GHS02	H223, H226, H228, H229, H242, H252, H261
Attention	Pas de Pictogramme		H221, H229
Danger		GHS03	H270, H271, H272
Attention		GHS03	H272
Attention		GHS04	H280, H281
Danger		GHS06	H300, H310, H330, H301, H311, H331
Attention		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370, H372, H334, H304
Attention		GHS08	H341, H351, H361, H371, H373
Danger		GHS05	H314, H318
Attention		GHS05	H290
Attention		GHS07	H315, H319, H317, H335, H336, H420
Attention		GHS09	H400, H410
Pas de mention d'avertissement		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

## H - Codes

### Des Mentions de danger des dangers physiques

**H200**  
Explosif instable.

**H201**  
Explosif; danger d'explosion en masse.

**H202**  
Explosif; danger sérieux de projection.

**H203**  
Explosif; danger d'incendie, d'effet de souffle ou de projection.

**H204**  
Danger d'incendie ou de projection.

**H205**  
Danger d'explosion en masse en cas d'incendie.

**H220**  
Gaz extrêmement inflammable.

**H221**  
Gaz inflammable.

**H222**  
Aérosol extrêmement inflammable.

**H223**  
Aérosol inflammable.

**H224**  
Liquide et vapeurs extrêmement inflammables.

**H225**  
Liquide et vapeurs très inflammables.

**H226**  
Liquide et vapeurs inflammables.

**H227**  
Liquide combustible.

**H228**  
Matière solide inflammable.

**H229**  
Récipient sous pression: peut éclater sous l'effet de la chaleur.

**H230**  
Peut exploser même en l'absence d'air.

**H231**  
Peut exploser même en l'absence d'air à une pression et/ou température élevée(s).

**H240**  
Peut exploser sous l'effet de la chaleur.

**H241**  
Peut s'enflammer ou exploser sous l'effet de la chaleur.

**H242**  
Peut s'enflammer sous l'effet de la chaleur.

**H250**  
S'enflamme spontanément au contact de l'air.

**H251**  
Matière auto-échauffante; peut s'enflammer.

**H252**  
Matière auto-échauffante en grandes quantités; peut s'enflammer.

**H260**  
Dégage au contact de l'eau des gaz inflammables qui peuvent s'enflammer spontanément.

**H261**  
Dégage au contact de l'eau des gaz inflammables.

**H270**  
Peut provoquer ou aggraver un incendie; comburant.

**H271**  
Peut provoquer un incendie ou une explosion; comburant puissant.

**H272**  
Peut aggraver un incendie; comburant.

**H280**  
Contient un gaz sous pression; peut exploser sous l'effet de la chaleur.

## H281

Contient un gaz réfrigéré; peut causer des brûlures ou blessures cryogéniques.

## H290

Peut être corrosif pour les métaux.

## Des Mentions de danger des dangers pour la santé

## H300

Mortel en cas d'ingestion.

## H301

Toxique en cas d'ingestion.

## H302

Nocif en cas d'ingestion.

## H303

Peut être nocif en cas d'ingestion.

## H304

Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires.

## H305

Peut être nocif en cas d'ingestion et de pénétration dans les voies respiratoires.

## H310

Mortel par contact cutané.

## H311

Toxique par contact cutané.

## H312

Nocif par contact cutané.

## H313

Peut être nocif par contact cutané.

## H314

Provoque des brûlures de la peau et des lésions oculaires graves.

## H315

Provoque une irritation cutanée.

## H300+H310

Mortel par ingestion ou par contact cutané.

## H300+H310+H330

Mortel par ingestion, par contact cutané ou par inhalation.

## H300+H330

Mortel par ingestion ou par inhalation.

## H301+H311

Toxique par ingestion ou par contact cutané.

## H301+H311+H331

Toxique par ingestion, par contact cutané ou par inhalation.

## H301+H331

Toxique par ingestion ou par inhalation.

## H302+H312

Nocif en cas d'ingestion ou de contact cutané.

## H302+H312+H332

Nocif en cas d'ingestion, de contact cutané ou d'inhalation.

## H302+H332

Nocif en cas d'ingestion ou d'inhalation.

## H303+H313

Peut être nocif en cas d'ingestion ou de contact cutané.

## H303+H313+H333

Peut être nocif en cas d'ingestion, de contact cutané ou d'inhalation.

## H303+H333

Peut être nocif en cas d'ingestion ou d'inhalation.

## H310+H330

Mortel par contact cutané ou par inhalation.

## H311+H331

Toxique par contact cutané ou par inhalation.

## H312+H332

Nocif en cas de contact cutané ou d'inhalation.

## H313+H333

Peut être nocif en cas de contact cutané ou d'inhalation.

## H315+H330

Cause une irritation cutanée et oculaire.

## H316

Provoque une légère irritation cutanée.

## H317

Peut provoquer une allergie cutanée.

## H318

Provoque des lésions oculaires graves.

## H319

Provoque une sévère irritation des yeux.

## H320

Provoque une irritation oculaire.

## H330

Mortel par inhalation.

## H331

Toxique par inhalation.

## H332

Nocif par inhalation.

## H333

Peut être nocif par inhalation.

## H334

Peut provoquer des symptômes allergiques ou d'asthme ou des difficultés respiratoires par inhalation.

## H335

Peut irriter les voies respiratoires.

## H336

Peut provoquer somnolence ou vertiges.

**H340**  
Peut induire des anomalies génétiques.

**H341**  
Susceptible d'induire des anomalies génétiques.

**H350**  
Peut provoquer le cancer.

**H350i**  
Peut provoquer le cancer par inhalation.

**H351**  
Susceptible de provoquer le cancer.

**H351i**  
Susceptible de provoquer le cancer par inhalation.

**H360**  
Peut nuire à la fertilité ou au fœtus.

**H360D**  
Peut nuire au fœtus.

**H360Df**  
Peut nuire au fœtus. Susceptible de nuire à la fertilité.

**H360F**  
Peut nuire à la fertilité.

**H360FD**  
Peut nuire à la fertilité. Peut nuire au fœtus.

**H360Fd**  
Peut nuire à la fertilité. Susceptible de nuire au fœtus.

**H361**  
Susceptible de nuire à la fertilité ou au fœtus.

**H361d**  
Susceptible de nuire au fœtus.

**H361f**  
Susceptible de nuire à la fertilité.

**H361fd**  
Susceptible de nuire à la fertilité. Susceptible de nuire au fœtus.

**H362**  
Peut être nocif pour les bébés nourris au lait maternel.

**H370**  
Risque avéré d'effets graves pour les organes.

**H371**  
Risque présumé d'effets graves pour les organes.

**H372**  
Risque avéré d'effets graves pour les organes à la suite d'expositions répétées ou d'une exposition prolongée.

**H373**  
Risque présumé d'effets graves pour les organes à la suite d'expositions répétées ou d'une exposition prolongée.

## Des Mentions de danger des dangers pour l'environnement

**H400**  
Très toxique pour les organismes aquatiques.

**H401**  
Toxique pour les organismes aquatiques.

**H402**  
Nocif pour les organismes aquatiques.

**H410**  
Très toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**H411**  
Toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**H412**  
Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

**H413**  
Peut être nocif à long terme pour les organismes aquatiques.

**H420**  
Nuit à la santé publique et à l'environnement en détruisant l'ozone dans la haute atmosphère

## EUH - Codes

### Des informations de dangers supplémentaires

**EUH001**  
Explosif à l'état sec.

**EUH006**  
Danger d'explosion en contact ou sans contact avec l'air.

**EUH014**  
Réagit violemment au contact de l'eau.

**EUH018**  
Lors de l'utilisation, formation possible de mélange vapeur-air inflammable/explosif.

**EUH019**  
Peut former des peroxydes explosifs.

**EUH029**  
Au contact de l'eau, dégage des gaz toxiques.

**EUH031**  
Au contact d'un acide, dégage un gaz toxique.

**EUH032**  
Au contact d'un acide, dégage un gaz très toxique.

**EUH044**  
Risque d'explosion si chauffé en ambiance confinée.

**EUH059**  
Dangereux pour la couche d'ozone.

**EUH066**  
L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.

**EUH070**  
Toxique par contact oculaire.

**EUH071**  
Corrosif pour les voies respiratoires.

## P - Codes

**P101**  
En cas de consultation d'un médecin, garder à disposition le récipient ou l'étiquette.

**P102**  
Tenir hors de portée des enfants.

**P103**  
Lire l'étiquette avant utilisation.

**P201**  
Se procurer les instructions avant utilisation.

**P202**  
Ne pas manipuler avant d'avoir lu et compris toutes les précautions de sécurité.

**P210**  
Tenir à l'écart de la chaleur/des étincelles/des flammes nues/des surfaces chaudes. - Ne pas fumer.

**P210a**  
Tenir à l'écart de la chaleur. - Ne pas fumer.

**P210b**  
Tenir à l'écart des étincelles. - Ne pas fumer.

**P210c**  
Tenir à l'écart des flammes nues. - Ne pas fumer.

**P210d**  
Tenir à l'écart des surfaces chaudes. - Ne pas fumer.

**P211**  
Ne pas vaporiser sur une flamme nue ou sur toute autre source d'ignition.

**P220**  
Tenir/stocker à l'écart des vêtements/matières combustibles.

**P220a**  
Tenir à l'écart des vêtements.

**P220b**  
Tenir à l'écart des matières combustibles.

**P220c**  
Tenir à l'écart des agents de réduction, des composés de métaux lourds, des acides et des alcalis.

**P220d**  
Tenir à l'écart des matières oxydantes et acides ainsi que des composés de métaux lourds.

**P220e**  
Tenir à l'écart du fer.

**P220f**  
Tenir à l'écart de l'eau.

**P220g**  
Tenir à l'écart des acides.

**P220h**  
Tenir à l'écart des lessives alcalines.

**P220i**  
Tenir à l'écart des métaux.

**P220j**  
Tenir à l'écart des matières oxydantes et acides.

**P220k**  
Tenir à l'écart des substances organiques inflammables.

**P220l**  
Tenir à l'écart des acides, agents de réduction et matières inflammables.

**P221**  
Prendre toutes précautions pour éviter de mélanger avec des matières combustibles.

**P222**  
Ne pas laisser au contact de l'air.

**P223**  
Éviter tout contact avec l'eau, à cause du risque de réaction violente et d'inflammation spontanée.

**P230**  
Maintenir humidifié avec...

**P230a**  
Maintenir humidifié.

**P231**  
Manipuler sous gaz inerte.

**P232**  
Protéger de l'humidité.

**P233**  
Maintenir le récipient fermé de manière étanche.

**P234**  
Conservé uniquement dans le récipient d'origine.

**P235**  
Tenir au frais.

**P240**  
Mise à la terre/liaison équipotentielle du récipient et du matériel de réception.

**P241**  
Utiliser du matériel électrique/de ventilation/d'éclairage/antidéflagrant.

**P242**  
Ne pas utiliser d'outils produisant des étincelles.

**P243**  
Prendre des mesures de précaution contre les décharges électrostatiques.

**P244**  
S'assurer de l'absence de graisse ou d'huile sur les soupapes de réduction.

**P250**  
Éviter les abrasions/les chocs/les frottements.

**P251**  
Récipient sous pression: ne pas perforer, ni brûler, même après usage.

**P260**  
Ne pas respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

**P260a**  
Ne pas respirer les poussières.

**P260b**  
Ne pas respirer les fumées.

**P260c**  
Ne pas respirer les gaz.

**P260d**  
Ne pas respirer les brouillards.

**P260e**  
Ne pas respirer les vapeurs.

**P260f**  
Ne pas respirer les aérosols.

**P260g**  
Ne pas respirer les brouillards/vapeurs/aérosols.

**P261**  
Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

**P261a**  
Éviter de respirer les poussières.

**P261b**  
Éviter de respirer les fumées.

**P261c**  
Éviter de respirer les gaz.

**P261d**  
Éviter de respirer les brouillards.

**P261e**  
Éviter de respirer les vapeurs.

**P261f**  
Éviter de respirer les aérosols.

**P261g**  
Éviter de respirer les brouillards/vapeurs/aérosols.

**P262**  
Éviter tout contact avec les yeux, la peau ou les vêtements.

**P263**  
Éviter tout contact avec la substance au cours de la grossesse/pendant l'allaitement.

**P264**  
Se laver soigneusement après manipulation.

**P270**  
Ne pas manger, boire ou fumer en manipulant ce produit.

**P271**  
Utiliser seulement en plein air ou dans un endroit bien ventilé.

**P272**  
Les vêtements de travail contaminés ne devraient pas sortir du lieu de travail.

**P273**  
Éviter le rejet dans l'environnement.

**P280**  
Porter des gants de protection/des vêtements de protection/ un équipement de protection des yeux/du visage.

**P280a**  
Porter des gants de protection / un équipement de protection des yeux / un équipement de protection du visage.

**P280b**  
Porter des gants de protection / un équipement de protection des yeux.

**P280c**  
Porter des gants de protection / un équipement de protection du visage.

**P280d**  
Porter des vêtements de protection / un équipement de protection des yeux.

**P280e**  
Porter des vêtements de protection / un équipement de protection du visage.

**P280f**  
Porter des vêtements de protection.

**P280g**  
Porter des gants de protection.

**P280h**  
Porter des gants de protection / des vêtements de protection.

**P280i**  
Porter un équipement de protection des yeux / un équipement de protection du visage.

**P280j**  
Porter un équipement de protection du visage.

**P282**  
Porter des gants isolants contre le froid/un équipement de protection du visage/des yeux.

**P283**  
Porter des vêtements résistants au feu/aux flammes/ignifuges.



**P284**  
Porter un équipement de protection respiratoire.

**P301**  
EN CAS D'INGESTION:

**P302**  
EN CAS DE CONTACT AVEC LA PEAU:

**P303**  
EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux):

**P304**  
EN CAS D'INHALATION:

**P305**  
EN CAS DE CONTACT AVEC LES YEUX:

**P306**  
EN CAS DE CONTACT AVEC LES VÊTEMENTS:

**P308**  
EN CAS d'exposition prouvée ou suspectée:

**P310**  
Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.

**P311**  
Appeler un CENTRE ANTIPOISON ou un médecin.

**P312**  
Appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

**P313**  
Consulter un médecin.

**P314**  
Consulter un médecin en cas de malaise.

**P315**  
Consulter immédiatement un médecin.

**P320**  
Un traitement spécifique est urgent (voir sur cette étiquette).

**P321**  
Traitement spécifique (voir sur cette étiquette).

**P330**  
Rincer la bouche.

**P331**  
NE PAS faire vomir.

**P332**  
En cas d'irritation cutanée:

**P333**  
En cas d'irritation ou d'éruption cutanée:

**P334**  
Rincer à l'eau fraîche/poser une compresse humide.

**P335**  
Enlever avec précaution les particules déposées sur la peau.

**P336**  
Dégeler les parties gelées avec de l'eau tiède. Ne pas frotter les zones touchées.

**P337**  
Si l'irritation oculaire persiste:

**P338**  
Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

**P340**  
Transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer.

**P342**  
En cas de symptômes respiratoires:

**P351**  
Rincer avec précaution à l'eau pendant plusieurs minutes.

**P352**  
Laver abondamment à l'eau et au savon.

**P353**  
Rincer la peau à l'eau/se doucher.

**P360**  
Rincer immédiatement et abondamment avec de l'eau les vêtements contaminés et la peau avant de les enlever.

**P361**  
Enlever immédiatement les vêtements contaminés.

**P362**  
Enlever les vêtements contaminés et les laver avant réutilisation.

**P363**  
Laver les vêtements contaminés avant réutilisation.

**P364**  
Et les laver avant réutilisation.

**P370**  
En cas d'incendie:

**P371**  
En cas d'incendie important et s'il s'agit de grandes quantités:

**P372**  
Risque d'explosion en cas d'incendie.

**P373**  
NE PAS combattre l'incendie lorsque le feu atteint les explosifs.

**P374**  
Combattre l'incendie à distance en prenant les précautions normales.

**P375**  
Combattre l'incendie à distance à cause du risque d'explosion.

**P376**  
Obturer la fuite si cela peut se faire sans danger.

**P377**  
Fuite de gaz enflammé: Ne pas éteindre si la fuite ne peut pas être arrêtée sans danger.

**P378**  
Utiliser ... pour l'extinction.

**P378a**  
Utiliser pour l'extinction: CO<sub>2</sub>, poudre d'extinction ou eau pulvérisée.

**P378b**  
Utiliser pour l'extinction: Poudre spéciale pour incendies de métaux.

**P378c**  
Utiliser pour l'extinction: CO<sub>2</sub>, sable, poudre d'extinction.

**P378d**  
Utiliser pour l'extinction: Eau.

**P378e**  
Utiliser pour l'extinction: Brouillard d'eau.

**P378f**  
Utiliser pour l'extinction: Eau pulvérisée.

**P378g**  
Utiliser pour l'extinction: Mousse.

**P378h**  
Utiliser pour l'extinction: Mousse résistant à l'alcool.

**P378i**  
Utiliser pour l'extinction: Poudre d'extinction.

**P378j**  
Utiliser pour l'extinction: Poudre BC.

**P378k**  
Utiliser pour l'extinction: Poudre ABC.

**P378l**  
Utiliser pour l'extinction: Dioxyde de carbone.

**P378m**  
Utiliser pour l'extinction: Poudre de roche calcaire.

**P378n**  
Utiliser pour l'extinction: Ciment.

**P378o**  
Utiliser pour l'extinction: Sable.

**P378p**  
Utiliser pour l'extinction: Sable sec.

**P380**  
Évacuer la zone.

**P381**  
Éliminer toutes les sources d'ignition si cela est faisable sans danger.

**P390**  
Absorber toute substance répandue pour éviter qu'elle attaque les matériaux environnants.

**P391**  
Recueillir le produit répandu.

**P301+P310**  
EN CAS D'INGESTION: appeler immédiatement un CENTRE ANTIPOISON ou un médecin.

**P301+P312**  
EN CAS D'INGESTION: appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

**P301+P330+P331**  
EN CAS D'INGESTION: rincer la bouche. NE PAS faire vomir.

**P302+P334**  
EN CAS DE CONTACT AVEC LA PEAU: rincer à l'eau fraîche/poser une compresse humide.

**P302+P352**  
EN CAS DE CONTACT AVEC LA PEAU: laver abondamment à l'eau et au savon.

**P303+P361+P353**  
EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): enlever immédiatement les vêtements contaminés. Rincer la peau à l'eau/se doucher.

**P304+P312**  
EN CAS D'INHALATION: Appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

**P304+P340**  
EN CAS D'INHALATION: transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer.

**P305+P351+P338**  
EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

**P306+P360**  
EN CAS DE CONTACT AVEC LES VÊTEMENTS: rincer immédiatement et abondamment avec de l'eau les vêtements contaminés et la peau avant de les enlever.

**P308+P311**  
En cas d'exposition prouvée ou suspectée: Appeler un CENTRE ANTIPOISON/un médecin.

**P308+P313**  
EN CAS d'exposition prouvée ou suspectée: consulter un médecin.

**P231+P232**  
Manipuler sous gaz inerte. Protéger de l'humidité.

**P332+P313**  
En cas d'irritation cutanée: consulter un médecin.

**P333+P313**  
En cas d'irritation ou d'éruption cutanée: consulter un médecin.

**P335+P334**  
Enlever avec précaution les particules déposées sur la peau. Rincer à l'eau fraîche/poser une compresse humide.

**P235+P410**  
Tenir au frais. Protéger du rayonnement solaire.

**P337+P313**  
Si l'irritation oculaire persiste: consulter un médecin.

**P342+P311**  
En cas de symptômes respiratoires: appeler un CENTRE ANTIPOISON ou un médecin.

**P361+P364**  
Enlever immédiatement tous les vêtements contaminés et les laver avant réutilisation.

**P362+P364**  
Enlever les vêtements contaminés et les laver avant réutilisation.

**P370+P376**  
En cas d'incendie: obturer la fuite si cela peut se faire sans danger.

**P370+P378**  
En cas d'incendie: utiliser ... pour l'extinction.

**P370+P378a**  
En cas d'incendie: Utiliser pour l'extinction: CO<sub>2</sub>, poudre d'extinction ou eau pulvérisée.

**P370+P378b**  
En cas d'incendie: Utiliser pour l'extinction: Poudre spéciale pour incendies de métaux.

**P370+P378c**  
En cas d'incendie: Utiliser pour l'extinction: CO<sub>2</sub>, sable, poudre d'extinction.

**P370+P378d**  
En cas d'incendie: Utiliser pour l'extinction: Eau.

**P370+P378e**  
En cas d'incendie: Utiliser pour l'extinction: Brouillard d'eau.

**P370+P378f**  
En cas d'incendie: Utiliser pour l'extinction: Eau pulvérisée.

**P370+P378g**  
En cas d'incendie: Utiliser pour l'extinction: Mousse.

**P370+P378h**  
En cas d'incendie: Utiliser pour l'extinction: Mousse résistant à l'alcool.

**P370+P378i**  
En cas d'incendie: Utiliser pour l'extinction: Poudre d'extinction.

**P370+P378j**  
En cas d'incendie: Utiliser pour l'extinction: Poudre BC.

**P370+P378k**  
En cas d'incendie: Utiliser pour l'extinction: Poudre ABC.

**P370+P378l**  
En cas d'incendie: Utiliser pour l'extinction: Dioxyde de carbone.

**P370+P378m**  
En cas d'incendie: Utiliser pour l'extinction: Poudre de roche calcaire.

**P370+P378n**  
En cas d'incendie: Utiliser pour l'extinction: Ciment.

**P370+P378o**  
En cas d'incendie: Utiliser pour l'extinction: Sable.

**P370+P378p**  
En cas d'incendie: Utiliser pour l'extinction: Sable sec.

**P370+P380**  
En cas d'incendie: évacuer la zone.

**P370+P380+P375**  
En cas d'incendie: évacuer la zone. Combattre l'incendie à distance à cause du risque d'explosion.

**P371+P380+P375**  
En cas d'incendie important et s'il s'agit de grandes quantités: évacuer la zone. Combattre l'incendie à distance à cause du risque d'explosion.

**P401**  
Stocker ...

**P401a**  
Stocker conformément à la réglementation locale/régionale/nationale/internationale.

**P402**  
Stocker dans un endroit sec.

**P403**  
Stocker dans un endroit bien ventilé.

**P404**  
Stocker dans un récipient fermé.

**P405**  
Garder sous clef.

**P406**  
Stocker dans un récipient résistant à la corrosion/récipient en avec doublure intérieure résistant à la corrosion.

**P407**  
Maintenir un intervalle d'air entre les piles/palettes.

**P410**  
Protéger du rayonnement solaire.



**P411**  
Stocker à une température ne dépassant pas... °C/... °F.

**P411a**  
Stocker à une température ne dépassant pas... °C.

**P411b**  
Stocker à une température ne dépassant pas... °F.

**P412**  
Ne pas exposer à une température supérieure à 50 °C/122 °F.

**P413**  
Stocker les quantités en vrac de plus de ...kg/...lb à une température ne dépassant pas ...°C/... °F.

**P413a**  
Stocker les quantités en vrac de plus de ...kg à une température ne dépassant pas... °C.

**P413b**  
Stocker les quantités en vrac de plus de ...lb à une température ne dépassant pas ...°F.

**P420**  
Stocker à l'écart des autres matières.

**P420a**  
Stocker à l'écart des aliments.

**P420b**  
Stocker à l'écart des matières inflammables.

**P420c**  
Stocker à l'écart des agents d'oxydation.

**P420d**  
Stocker à l'écart des agents de réduction.

**P420e**  
Stocker à l'écart de l'eau.

**P420f**  
Stocker à l'écart des métaux.

**P420g**  
Stocker à l'écart des acides.

**P420h**  
Stocker à l'écart des alcalis (lessives).

**P422**  
Stocker le contenu sous ...

**P422a**  
Stocker le contenu sous gaz inerte.

**P422b**  
Stocker le contenu sous gaz protecteur.

**P422c**  
Stocker le contenu sous solvant.

**P422d**  
Conserver dans l'eau.

**P422e**  
Conserver dans le pétrole.

**P422f**  
Conserver dans l'azote.

**P402+P404**  
Stocker dans un endroit sec. Stocker dans un récipient fermé.

**P403+P233**  
Stocker dans un endroit bien ventilé. Maintenir le récipient fermé de manière étanche.

**P403+P235**  
Stocker dans un endroit bien ventilé. Tenir au frais.

**P410+P403**  
Protéger du rayonnement solaire. Stocker dans un endroit bien ventilé.

**P410+P412**  
Protéger du rayonnement solaire. Ne pas exposer à une température supérieure à 50 °C/122 °F.

**P411+P235**  
Stocker à une température ne dépassant pas ...°C/...°F. Tenir au frais.

**P411a+P235**  
Stocker à une température ne dépassant pas... °C. Tenir au frais.

















**P411b+P235**  
Stocker à une température ne dépassant pas ...°F. Tenir au frais.

**P501**  
Éliminer le contenu/récipient dans ...

**P501a**  
Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.

**P502**  
Se reporter au fabricant/fournisseur pour des informations concernant la récupération/le recyclage

## Sistema mondiale armonizzato di classificazione ed etichettatura delle sostanze chimiche (GHS)

Pericolo		GHS01	H200, H201, H202, H203, H240, H241
Attenzione		GHS01	H204
Pericolo		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Attenzione		GHS02	H223, H226, H228, H229, H242, H252, H261
Attenzione	Nessun pittogramma		H221, H229
Pericolo		GHS03	H270, H271, H272
Attenzione		GHS03	H272
Attenzione		GHS04	H280, H281
Pericolo		GHS06	H300, H310, H330, H301, H311, H331
Attenzione		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370, H372, H334, H304
Attenzione		GHS08	H341, H351, H361, H371, H373
Pericolo		GHS05	H314, H318
Attenzione		GHS05	H290
Attenzione		GHS07	H315, H319, H317, H335, H336, H420
Attenzione		GHS09	H400, H410
Nessuna Avvertenza		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

## H - Codici

### Indicazioni di pericolo pericolo fisico

#### H200

Esplosivo instabile.

#### H201

Esplosivo; pericolo di esplosione di massa.

#### H202

Esplosivo; grave pericolo di proiezione.

#### H203

Esplosivo; pericolo di incendio, di spostamento d'aria o di proiezione.

#### H204

Pericolo di incendio o di proiezione.

#### H205

Pericolo di esplosione di massa in caso d'incendio.

#### H220

Gas altamente infiammabile.

#### H221

Gas infiammabile.

#### H222

Aerosol altamente infiammabile.

#### H223

Aerosol infiammabile.

#### H224

Liquido e vapori altamente infiammabili.

#### H225

Liquido e vapori facilmente infiammabili.

#### H226

Liquido e vapori infiammabili.

#### H227

Liquido combustibile.

#### H228

Solido infiammabile.

#### H229

Recipiente sotto pressione: può esplodere se riscaldato.

#### H230

Può reagire in modo esplosivo anche in assenza di aria.

#### H231

Può reagire in modo esplosivo anche in assenza di aria a pressione e/o temperatura elevata.

#### H240

Rischio di esplosione per riscaldamento.

#### H241

Rischio d'incendio o di esplosione per riscaldamento.

#### H242

Rischio d'incendio per riscaldamento.

#### H250

Spontaneamente infiammabile all'aria.

#### H251

Autoriscaldante; può infiammarsi.

#### H252

Autoriscaldante in grandi quantità; può infiammarsi.

#### H260

A contatto con l'acqua libera gas infiammabili che possono infiammarsi spontaneamente.

#### H261

A contatto con l'acqua libera gas infiammabili.

#### H270

Può provocare o aggravare un incendio; comburente.

#### H271

Può provocare un incendio o un'esplosione; molto comburente.

#### H272

Può aggravare un incendio; comburente.

#### H280

Contiene gas sotto pressione; può esplodere se riscaldato.

**H281**  
Contiene gas refrigerato; può provocare ustioni o lesioni criogeniche.  
**H290**  
Può essere corrosivo per i metalli.

## Indicazioni di pericolo per la salute

**H300**  
Letale se ingerito.  
**H301**  
Tossico se ingerito.  
**H302**  
Nocivo se ingerito.  
**H303**  
Può essere nocivo per ingestione.  
**H304**  
Può essere letale in caso di ingestione e di penetrazione nelle vie respiratorie.  
**H305**  
Può essere nocivo per ingestione e se raggiunge le vie respiratorie.  
**H310**  
Letale per contatto con la pelle.  
**H311**  
Tossico per contatto con la pelle.  
**H312**  
Nocivo per contatto con la pelle.  
**H313**  
Può essere nocivo a contatto con la pelle.  
**H314**  
Provoca gravi ustioni cutanee e gravi lesioni oculari.  
**H315**  
Provoca irritazione cutanea.  
**H316**  
Causa leggera irritazione cutanea.  
**H317**  
Può provocare una reazione allergica cutanea.  
**H318**  
Provoca gravi lesioni oculari.  
**H319**  
Provoca grave irritazione oculare.  
**H320**  
Causa irritazione agli occhi.  
**H330**  
Letale se inalato.  
**H331**  
Tossico se inalato.  
**H332**  
Nocivo se inalato.  
**H333**  
Può essere nocivo per inalazione.  
**H334**  
Può provocare sintomi allergici o asmatici o difficoltà respiratorie se inalato.  
**H335**  
Può irritare le vie respiratorie.  
**H336**  
Può provocare sonnolenza o vertigini.  
**H340**  
Può provocare alterazioni genetiche.  
**H341**  
Sospettato di provocare alterazioni genetiche.  
**H350**  
Può provocare il cancro.  
**H350i**  
Può provocare il cancro se inalato.  
**H351**  
Sospettato di provocare il cancro.  
**H351i**  
Sospettato di provocare il cancro per inalazione.  
**H360**  
Può nuocere alla fertilità o al feto.  
**H360D**  
Può nuocere al feto.  
**H360Df**  
Può nuocere al feto. Sospettato di nuocere alla fertilità.  
**H360F**  
Può nuocere alla fertilità.  
**H360FD**  
Può nuocere alla fertilità. Può nuocere al feto.  
**H360Fd**  
Può nuocere alla fertilità. Sospettato di nuocere al feto.  
**H361**  
Sospettato di nuocere alla fertilità o al feto.  
**H361d**  
Sospettato di nuocere al feto.  
**H361f**  
Sospettato di nuocere alla fertilità  
**H361fd**  
Sospettato di nuocere alla fertilità Sospettato di nuocere al feto.  
**H362**  
Può essere nocivo per i lattanti allattati al seno.  
**H370**  
Provoca danni agli organi.

**H371**  
Può provocare danni agli organi.  
**H372**  
Provoca danni agli organi in caso di esposizione prolungata o ripetuta.  
**H373**  
Può provocare danni agli organi in caso di esposizione prolungata o ripetuta.  
**H300+H310**  
Mortale in caso di ingestione o a contatto con la pelle.  
**H300+H310+H330**  
Mortale se ingerito, a contatto con la pelle o se inalato.  
**H300+H330**  
Mortale se ingerito o inalato.  
**H301+H311**  
Tossico se ingerito o a contatto con la pelle.  
**H301+H311+H331**  
Tossico se ingerito, a contatto con la pelle o se inalato.  
**H301+H331**  
Tossico se ingerito o inalato.  
**H302+H312**  
Nocivo se ingerito o a contatto con la pelle.  
**H302+H312+H332**  
Nocivo se ingerito, a contatto con la pelle o se inalato.  
**H302+H332**  
Nocivo se ingerito o inalato.  
**H303+H313**  
Può essere nocivo per ingestione o a contatto con la pelle.  
**H303+H313+H333**  
Può essere nocivo per ingestione, a contatto con la pelle o per inalazione.  
**H303+H333**  
Può essere nocivo per ingestione o per inalazione.  
**H310+H330**  
Mortale a contatto con la pelle o in caso di inalazione.  
**H311+H331**  
Tossico a contatto con la pelle o se inalato.  
**H312+H332**  
Nocivo a contatto con la pelle o se inalato.  
**H313+H333**  
Può essere nocivo a contatto con la pelle o per inalazione.  
**H315+H320**  
Provoca irritazione cutanea e agli occhi.

## Indicazioni di pericolo per l'ambiente

**H400**  
Molto tossico per gli organismi acquatici.  
**H401**  
Tossico per gli organismi acquatici.  
**H402**  
Nocivo per gli organismi acquatici.  
**H410**  
Molto tossico per gli organismi acquatici con effetti di lunga durata.  
**H411**  
Tossico per gli organismi acquatici con effetti di lunga durata.  
**H412**  
Nocivo per gli organismi acquatici con effetti di lunga durata.  
**H413**  
Può essere nocivo per gli organismi acquatici con effetti di lunga durata.  
**H420**  
Nuoce alla salute pubblica e all'ambiente distruggendo l'ozono dello strato superiore dell'atmosfera

## EUH - Codici

### informazioni supplementari sui pericoli

**EUH001**  
Esplosivo allo stato secco.  
**EUH006**  
Esplosivo a contatto o senza contatto con l'aria.  
**EUH014**  
Reagisce violentemente con l'acqua.  
**EUH018**  
Durante l'uso può formarsi una miscela vapore-aria esplosiva/infiammabile.  
**EUH019**  
Può formare perossidi esplosivi.  
**EUH029**  
A contatto con l'acqua libera un gas tossico.  
**EUH031**  
A contatto con acidi libera gas tossici.  
**EUH032**  
A contatto con acidi libera gas molto tossici.  
**EUH044**  
Rischio di esplosione per riscaldamento in ambiente confinato.  
**EUH059**  
Pericoloso per lo strato di ozono.  
**EUH066**  
L'esposizione ripetuta può provocare secchezza o screpolature della pelle.

**EUH070**  
Tossico per contatto oculare.  
**EUH071**  
Corrosivo per le vie respiratorie.

## P - Codices

**P101**  
In caso di consultazione di un medico, tenere a disposizione il contenitore o l'etichetta del prodotto.  
**P102**  
Tenere fuori dalla portata dei bambini.  
**P103**  
Leggere l'etichetta prima dell'uso.  
**P201**  
Procurarsi istruzioni specifiche prima dell'uso.  
**P202**  
Non manipolare prima di avere letto e compreso tutte le avvertenze.  
**P210**  
Tenere lontano da fonti di calore/scintille/fiamme libere/superfici riscaldate. - Non fumare.  
**P210a**  
Tenere lontano da fonti di calore - Non fumare.  
**P210b**  
Tenere lontano da scintille - Non fumare.  
**P210c**  
Tenere lontano da fiamme libere. - Non fumare.  
**P210d**  
Tenere lontano da superfici riscaldate - Non fumare.  
**P211**  
Non vaporizzare su una fiamma libera o altra fonte di accensione.  
**P220**  
Tenere/conservare lontano da indumenti/materiali combustibili.  
**P220a**  
Tenere lontano da indumenti.  
**P220b**  
Tenere lontano da materiali combustibili.  
**P220c**  
Tenere lontano da riducenti, da composti di metalli pesanti, acidi e alcali.  
**P220d**  
Tenere lontano da sostanze ossidanti e acide e da composti di metalli pesanti.  
**P220e**  
Tenere lontano da ferro.  
**P220f**  
Tenere lontano da acqua.  
**P220g**  
Tenere lontano da acidi.  
**P220h**  
Tenere lontano da soluzioni alcaline.  
**P220i**  
Tenere lontano da metalli.  
**P220j**  
Tenere lontano da sostanze ossidanti e acide.  
**P220k**  
Tenere lontano da sostanze organiche infiammabili.  
**P220l**  
Tenere lontano da acidi, riducenti e materiali infiammabili.  
**P221**  
Prendere ogni precauzione per evitare di miscelare con sostanze combustibili.  
**P222**  
Evitare il contatto con l'aria.  
**P223**  
Evitare qualsiasi contatto con l'acqua: pericolo di reazione violenta e di infiammazione spontanea.  
**P230**  
Mantenere umido con....  
**P230a**  
Mantenere umido.  
**P231**  
Manipolare in atmosfera di gas inerte.  
**P232**  
Proteggere dall'umidità.  
**P233**  
Tenere il recipiente ben chiuso.  
**P234**  
Conservare soltanto nel contenitore originale.  
**P235**  
Conservare in luogo fresco.  
**P240**  
Mettere a terra/massa il contenitore e il dispositivo ricevente.  
**P241**  
Utilizzare impianti elettrici/di ventilazione/d'illuminazione/a prova di esplosione.  
**P242**  
Utilizzare solo utensili antiscintillamento.  
**P243**  
Prendere precauzioni contro le scariche elettrostatiche.  
**P244**  
Mantenere le valvole di riduzione libere da grasso e olio.

**P250**  
Evitare le abrasioni/gli urti/gli attriti.

**P251**  
Recipiente sotto pressione: non perforare né bruciare, neppure dopo l'uso.

**P260**  
Non respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

**P260a**  
Non respirare la polvere.

**P260b**  
Non respirare i fumi.

**P260c**  
Non respirare i gas.

**P260d**  
Non respirare la nebbia.

**P260e**  
Non respirare i vapori.

**P260f**  
Non respirare gli aerosol.

**P260g**  
Non respirare la nebbia/i vapori/gli aerosol.

**P261**  
Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

**P261a**  
Evitare di respirare la polvere.

**P261b**  
Evitare di respirare i fumi.

**P261c**  
Evitare di respirare i gas.

**P261d**  
Evitare di respirare la nebbia.

**P261e**  
Evitare di respirare i vapori.

**P261f**  
Evitare di respirare gli aerosol.

**P261g**  
Evitare di respirare la nebbia/i vapori/gli aerosol.

**P262**  
Evitare il contatto con gli occhi, la pelle o gli indumenti.

**P263**  
Evitare il contatto durante la gravidanza/l'allattamento.

**P264**  
Lavare accuratamente dopo l'uso.

**P270**  
Non mangiare, né bere, né fumare durante l'uso.

**P271**  
Utilizzare soltanto all'aperto o in luogo ben ventilato.

**P272**  
Gli indumenti da lavoro contaminati non devono essere portati fuori dal luogo di lavoro.

**P273**  
Non disperdere nell'ambiente.

**P280**  
Indossare guanti/indumenti protettivi/Proteggere gli occhi/il viso.

**P280a**  
Indossare guanti / occhiali di protezione / protezione per il viso.

**P280b**  
Indossare guanti di protezione / occhiali di protezione.

**P280c**  
Indossare guanti di protezione / protezione per il viso.

**P280d**  
Indossare indumenti protettivi / occhiali di protezione.

**P280e**  
Indossare indumenti protettivi / protezione per il viso.

**P280f**  
Indossare indumenti protettivi.

**P280g**  
Indossare guanti di protezione.

**P280h**  
Indossare guanti di protezione / indumenti protettivi.

**P280i**  
Indossare protezione per occhi / protezione per il viso.

**P280j**  
Indossare protezione per il viso.

**P281**  
Utilizzare il dispositivo di protezione individuale richiesto.

**P282**  
Utilizzare guanti termici/schermo facciale/Proteggere gli occhi.

**P283**  
Indossare indumenti completamente ignifughi o in tessuti ritardanti di fiamma.

**P284**  
Utilizzare un apparecchio respiratorio.

**P285**  
In caso di ventilazione insufficiente utilizzare un apparecchio respiratorio.

**P301**  
IN CASO DI INGESTIONE:

**P302**  
IN CASO DI CONTATTO CON LA PELLE:

**P303**  
IN CASO DI CONTATTO CON LA PELLE (o con i capelli):

**P304**  
IN CASO DI INALAZIONE:

**P305**  
IN CASO DI CONTATTO CON GLI OCCHI:

**P306**  
IN CASO DI CONTATTO CON GLI INDUMENTI:

**P307**  
IN CASO di esposizione:**P308**  
IN CASO di esposizione o di possibile esposizione:

**P309**  
IN CASO di esposizione o di malessere:

**P310**  
Contattare immediatamente un CENTRO ANTIVELENI o un medico.

**P311**  
Contattare un CENTRO ANTIVELENI o un medico.

**P312**  
In caso di malessere, contattare un CENTRO ANTIVELENI o un medico.

**P313**  
Consultare un medico.

**P314**  
In caso di malessere, consultare un medico.

**P315**  
Consultare immediatamente un medico.

**P320**  
Trattamento specifico urgente (vedere su questa etichetta).

**P321**  
Trattamento specifico (vedere su questa etichetta).

**P322**  
Misure specifiche (vedere su questa etichetta).

**P330**  
Sciacquare la bocca.

**P331**  
NON provocare il vomito.

**P332**  
In caso di irritazione della pelle:

**P333**  
In caso di irritazione o eruzione della pelle:

**P334**  
Immergere in acqua fredda/avvolgere con un bendaggio umido.

**P335**  
Rimuovere le particelle depositate sulla pelle.

**P336**  
Sgelare le parti congelate usando acqua tiepida. Non sfregare la parte interessata.

**P337**  
Se l'irritazione degli occhi persiste:

**P338**  
Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

**P340**  
Trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

**P341**  
Se la respirazione è difficile, trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

**P342**  
In caso di sintomi respiratori:

**P350**  
Lavare delicatamente e abbondantemente con acqua e sapone.

**P351**  
Sciacquare accuratamente per parecchi minuti.

**P352**  
Lavare abbondantemente con acqua e sapone.

**P353**  
Sciacquare la pelle/fare una doccia.

**P360**  
Sciacquare immediatamente e abbondantemente gli indumenti contaminati e la pelle prima di togliersi gli indumenti.

**P361**  
Togliersi di dosso immediatamente tutti gli indumenti contaminati.

**P362**  
Togliersi di dosso gli indumenti contaminati e lavarli prima di indossarli nuovamente.

**P363**  
Lavare gli indumenti contaminati prima di indossarli nuovamente.

**P364**  
E lavarli prima di indossarli nuovamente.

**P370**  
In caso di incendio:

**P371**  
In caso di incendio grave e di quantità rilevanti:

**P372**  
Rischio di esplosione in caso di incendio.

**P373**  
NON utilizzare mezzi estinguenti se l'incendio raggiunge materiali esplosivi.

**P374**  
Utilizzare i mezzi estinguenti con le precauzioni abituali a distanza ragionevole.

**P375**  
Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

**P376**  
Bloccare la perdita se non c'è pericolo.

**P377**  
In caso d'incendio dovuto a perdita di gas, non estinguere a meno che non sia possibile bloccare la perdita senza pericolo.

**P378**  
Estinguere con...

**P378a**  
Estinguere con: CO<sub>2</sub>, polvere per estintore o acqua nebulizzata.

**P378b**  
Estinguere con: Polvere speciale per incendi di metalli.

**P378c**  
Estinguere con: CO<sub>2</sub>, sabbia, polvere per estintore.

**P378d**  
Estinguere con: Acqua.

**P378e**  
Estinguere con: Acqua nebulizzata.

**P378f**  
Estinguere con: Getto d'acqua.

**P378g**  
Estinguere con: Schiuma.

**P378h**  
Estinguere con: Schiuma resistente all'alcool.

**P378i**  
Estinguere con: Polvere per estintore.

**P378j**  
Estinguere con: Polvere BC.

**P378k**  
Estinguere con: Polvere ABC.

**P378l**  
Estinguere con: Anidride carbonica.

**P378m**  
Estinguere con: Polvere calcarea.

**P378n**  
Estinguere con: Cemento.

**P378o**  
Estinguere con: Sabbia.

**P378p**  
Estinguere con: Sabbia asciutta.

**P380**  
Evacuare la zona.

**P381**  
Eliminare ogni fonte di accensione se non c'è pericolo.

**P390**  
Assorbire la fuoriuscita per evitare danni materiali.

**P391**  
Raccogliere il materiale fuoriuscito.

**P301+P310**  
IN CASO DI INGESTIONE: contattare immediatamente un CENTRO ANTIVELENI o un medico.

**P301+P312**  
IN CASO DI INGESTIONE accompagnata da malessere: contattare un CENTRO ANTIVELENI o un medico.

**P301+P330+P331**  
IN CASO DI INGESTIONE: sciacquare la bocca. NON provocare il vomito.

**P302+P334**  
IN CASO DI CONTATTO CON LA PELLE: immergere in acqua fredda/avvolgere con un bendaggio umido.

**P302+P350**  
IN CASO DI CONTATTO CON LA PELLE: lavare delicatamente e abbondantemente con acqua e sapone.

**P302+P352**  
IN CASO DI CONTATTO CON LA PELLE: lavare abbondantemente con acqua e sapone.

**P303+P361+P353**  
IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle/fare una doccia.

**P304+P312**  
IN CASO DI INALAZIONE accompagnata da malessere: Contattare un CENTRO ANTIVELENI o un medico.

**P304+P340**  
IN CASO DI INALAZIONE: trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

**P304+P341**  
IN CASO DI INALAZIONE: se la respirazione è difficile, trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

**P305+P351+P338**  
IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

**P306+P360**  
IN CASO DI CONTATTO CON GLI INDUMENTI: sciacquare immediatamente e abbondantemente gli indumenti contaminati e la pelle prima di togliersi gli indumenti.

**P307+P311**  
IN CASO di esposizione, contattare un CENTRO ANTIVELENI o un medico.

**P308+P311**

In caso di esposizione o di possibile esposizione: contattare un CENTRO ANTIVELENI/un medico.

**P308+P313**

IN CASO di esposizione o di possibile esposizione, consultare un medico.

**P309+P311**

IN CASO di esposizione o di malessere, contattare un CENTRO ANTIVELENI o un medico.

**P231+P232**

Manipolare in atmosfera di gas inerte. Tenere al riparo dall'umidità.

**P332+P313**

In caso di irritazione della pelle: consultare un medico.

**P333+P313**

In caso di irritazione o eruzione della pelle: consultare un medico.

**P335+P334**

Rimuovere le particelle depositate sulla pelle. Immergere in acqua fredda/avvolgere con un bendaggio umido.

**P235+P410**

Tenere in luogo fresco. Proteggere dai raggi solari.

**P337+P313**

Se l'irritazione degli occhi persiste, consultare un medico.

**P342+P311**

In caso di sintomi respiratori: contattare un CENTRO ANTIVELENI o un medico.

**P361+P364**

Togliersi di dosso immediatamente gli indumenti contaminati e lavarli prima di indossarli nuovamente.

**P362+P364**

Togliersi di dosso gli indumenti contaminati e lavarli prima di indossarli nuovamente.

**P370+P376**

In caso di incendio: bloccare la perdita se non c'è pericolo.

**P370+P378**

In caso di incendio: estinguere con....

**P370+P378a**

In caso di incendio: Estinguere con: CO<sub>2</sub>, polvere per estintore o acqua nebulizzata.

**P370+P378b**

In caso di incendio: Estinguere con: Polvere speciale per incendi di metalli.

**P370+P378c**

In caso di incendio: Estinguere con: CO<sub>2</sub>, sabbia, polvere per estintore.

**P370+P378d**

In caso di incendio: Estinguere con: Acqua.

**P370+P378e**

In caso di incendio: Estinguere con: Acqua nebulizzata.

**P370+P378f**

In caso di incendio: Estinguere con: Getto d'acqua.

**P370+P378g**

In caso di incendio: Estinguere con: Schiuma.

**P370+P378h**

In caso di incendio: Estinguere con: Schiuma resistente all'alcool.

**P370+P378i**

In caso di incendio: Estinguere con: Polvere per estintore.

**P370+P378j**

In caso di incendio: Estinguere con: Polvere BC.

**P370+P378k**

In caso di incendio: Estinguere con: Polvere ABC.

**P370+P378l**

In caso di incendio: Estinguere con: Anidride carbonica.

**P370+P378m**

In caso di incendio: Estinguere con: Polvere calcarea.

**P370+P378n**

In caso di incendio: Estinguere con: Cemento.

**P370+P378o**

In caso di incendio: Estinguere con: Sabbia.

**P370+P378p**

In caso di incendio: Estinguere con: Sabbia asciutta.

**P370+P380**

Evacuare la zona in caso di incendio.

**P370+P380+P375**

In caso di incendio: evacuare la zona. Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

**P371+P380+P375**

In caso di incendio grave e di grandi quantità: evacuare la zona. Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

**P401**

Conservare...

**P401a**

Conservare secondo i regolamenti locali/regionali/nazionali/internazionali.

**P402**

Conservare in luogo asciutto.

**P403**

Conservare in luogo ben ventilato.

**P404**

Conservare in un recipiente chiuso.

**P405**

Conservare sotto chiave. **P406**

Conservare in recipiente resistente alla corrosione provvisto di rivestimento interno resistente.

**P407**

Mantenere uno spazio libero tra gli scaffali/i pallet.

**P410**

Proteggere dai raggi solari.

**P411**

Conservare a temperature non superiori a ... °C/ ...°F.

**P411a**

Conservare a temperature non superiori a... °C.

**P411b**

Conservare a temperature non superiori a... °F.

**P412**

Non esporre a temperature superiori a 50 °C/122 °F.

**P413**

Conservare le rinfuse di peso superiore a ...kg/ ...lb a temperature non superiori a ... °C/ ...°F.

**P413a**

Conservare le rinfuse di peso superiore a ...kg a temperature non superiori a... °C.

**P413b**

Conservare le rinfuse di peso superiore a ...lb a temperature non superiori a ...°F.

**P420**

Conservare lontano da altri materiali.

**P420a**

Conservare lontano da alimenti.

**P420b**

Conservare lontano da sostanze infiammabili.

**P420c**

Conservare lontano dal ossidanti.

**P420d**

Conservare lontano da riducenti.

**P420e**

Conservare lontano dal acqua.

**P420f**

Conservare lontano da metalli.

**P420g**

**Conservare lontano dai acidi.**

**P420h**

Conservare lontano da sostanze alcaline.

**P422**

Conservare sotto...

**P422a**

Conservare sotto gas inerte.

**P422b**

Conservare sotto gas protettivo.

**P422c**

Conservare sotto solvente.

**P422d**

Conservare in acqua.

**P422e**

Conservare sotto petrolio.

**P422f**

Conservare sotto azoto.

**P402+P404**

Conservare in luogo asciutto e in recipiente chiuso.

**P403+P233**

Tenere il recipiente ben chiuso e in luogo ben ventilato.

**P403+P235**

Conservare in luogo fresco e ben ventilato.

**P410+P403**

Proteggere dai raggi solari. Conservare in luogo ben ventilato.

**P410+P412**

Proteggere dai raggi solari. Non esporre a temperature superiori a 50 °C/122 °F.

**P411+P235**

Conservare in luogo fresco a temperature non superiori a ...°C/ ...°F.

**P411a+P235**

Conservare in luogo fresco a temperature non superiori a ...°C.

**P411b+P235**

Conservare in luogo fresco a temperature non superiori a... °F.

**P501**

Smaltire il prodotto/recipiente in ...

**P501a**

Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

**P502**

Chiedere informazioni al produttore o fornitore per il recupero/riciclaggio





## H361fd

Se sospecha que perjudica a la fertilidad. Se sospecha que daña al feto.

## H362

Puede perjudicar a los niños alimentados con leche materna.

## H370

Provoca daños en los órganos.

## H371

Puede provocar daños en los órganos.

## H372

Provoca daños en los órganos tras exposiciones prolongadas o repetidas.

## H373

Puede provocar daños en los órganos tras exposiciones prolongadas o repetidas.

## H300+H310

Mortal en caso de ingestión o en contacto con la piel.

## H300+H310+H330

Mortal en caso de ingestión, contacto con la piel o inhalación.

## H300+H330

Mortal en caso de ingestión o inhalación.

## H301+H311

Tóxico en caso de ingestión o en contacto con la piel.

## H301+H311+H331

Tóxico en caso de ingestión, contacto con la piel o inhalación.

## H301+H331

Tóxico en caso de ingestión o inhalación.

## H302+H312

Nocivo en caso de ingestión o en contacto con la piel.

## H302+H312+H332

Nocivo en caso de ingestión, contacto con la piel o inhalación.

## H302+H332

Nocivo en caso de ingestión o inhalación.

## H303+H313

Puede ser nocivo en caso de ingestión o en contacto con la piel.

## H303+H313+H333

Puede ser nocivo en caso de ingestión, en contacto con la piel o si se inhala.

## H303+H333

Puede ser nocivo en caso de ingestión o si se inhala.

## H310+H330

Mortal en contacto con la piel o si se inhala.

## H311+H331

Tóxico en contacto con la piel o si se inhala.

## H312+H332

Nocivo en contacto con la piel o si se inhala.

## H313+H333

Puede ser nocivo en contacto con la piel o si se inhala.

## H315+H320

Provoca irritación cutánea y ocular.

## Indicaciones de peligro para el medio ambiente

### H400

Muy tóxico para los organismos acuáticos.

### H401

Tóxico para los organismos acuáticos.

### H402

Nocivo para los organismos acuáticos.

### H410

Muy tóxico para los organismos acuáticos, con efectos nocivos duraderos.

### H411

Tóxico para los organismos acuáticos, con efectos nocivos duraderos.

### H412

Nocivo para los organismos acuáticos, con efectos nocivos duraderos.

### H413

Puede ser nocivo para los organismos acuáticos, con efectos nocivos duraderos.

### H420

Causa daños a la salud pública y el medio ambiente al destruir el ozono en la atmósfera superior

## EUH - Códigos

### Información suplementaria sobre los peligros

#### EUH001

Explosivo en estado seco.

#### EUH006

Explosivo en contacto o sin contacto con el aire.

#### EUH014

Reacciona violentamente con el agua.

#### EUH018

Al usarlo pueden formarse mezclas aire-vapor explosivas o inflamables.

## EUH019

Puede formar peróxidos explosivos.

## EUH029

En contacto con agua libera gases tóxicos.

## EUH031

En contacto con ácidos libera gases tóxicos.

## EUH032

En contacto con ácidos libera gases muy tóxicos. **EUH044**

Riesgo de explosión al calentarlo en ambiente confinado.

## EUH059

Peligroso para la capa de ozono.

## EUH066

La exposición repetida puede provocar sequedad o formación de grietas en la piel.

## EUH070

Tóxico en contacto con los ojos.

## EUH071

Corrosivo para las vías respiratorias.

## P - Códigos

### P101

Si se necesita consejo médico, tener a mano el envase o la etiqueta.

### P102

Mantener fuera del alcance de los niños.

### P103

Leer la etiqueta antes del uso.

### P201

Pedir instrucciones especiales antes del uso.

### P202

No manipular la sustancia antes de haber leído y comprendido todas las instrucciones de seguridad. **210**

Mantener alejado de fuentes de calor, chispas, llama abierta o superficies calientes. - No fumar.

### P210a

Mantener alejado de fuentes de calor. - No fumar.

### P210b

Mantener alejado de chispas. - No fumar.

### P210c

Mantener alejado de llama abierta. - No fumar.

### P210d

Mantener alejado de superficies calientes. - No fumar.

### P211

No pulverizar sobre una llama abierta u otra fuente de ignición.

### P220

Mantener o almacenar alejado de la ropa/materiales combustibles.

### P220a

Mantener o almacenar alejado de la ropa.

### P220b

Mantener o almacenar alejado de materiales combustibles.

### P220c

Mantener alejado de agentes reductores, combinaciones de metales pesados, ácidos y álcalis.

### P220d

Mantener alejado de los productos oxidantes, ácidos y combinaciones de metales pesados.

### P220e

Mantener alejado del hierro.

### P220f

Mantener alejado del agua.

### P220g

Mantener alejado de los ácidos.

### P220h

Mantener alejado de las sosas.

### P220i

Mantener alejado de los metales.

### P220j

Mantener alejado de los productos oxidantes y ácidos.

### P220k

Mantener alejado de las sustancias orgánicas combustibles.

### P220l

Mantener alejado de los ácidos, agentes reductores y materiales combustibles.

### P221

Tomar todas las precauciones necesarias para no mezclar con materias combustibles.

### P222

No dejar que entre en contacto con el aire.

### P223

Mantener alejado de cualquier posible contacto con el agua, pues reacciona violentamente y puede provocar una llamarada.

### P230

Mantener humedecido con...

### P230a

Mantener humedecido.

### P231

Manipular en gas inerte.

## P232

Proteger de la humedad.

## P233

Mantener el recipiente herméticamente cerrado.

## P234

Conservar únicamente en el recipiente original.

## P235

Mantener en lugar fresco.

## P240

Conectar a tierra/enlace equipotencial del recipiente y del equipo de recepción.

## P241

Utilizar un material eléctrico, de ventilación o de iluminación/antideflagrante.

## P242

Utilizar únicamente herramientas que no produzcan chispas.

## P243

Tomar medidas de precaución contra descargas electrostáticas.

## P244

Mantener las válvulas de reducción limpias de grasa y aceite.

## P250

Evitar la abrasión/el choque/la fricción.

## P251

Recipiente a presión: no perforar ni quemar, aun después del uso.

## P260

No respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

## P260a

No respirar el polvo.

## P260b

No respirar el el humo.

## P260c

No respirar el el gas.

## P260d

No respirar el la niebla.

## P260e

No respirar el los vapores.

## P260f

No respirar el el aerosol.

## P260g

No respirar el la niebla/los vapores/el aerosol.

## P261

Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

## P261a

Evitar respirar el polvo.

## P261b

Evitar respirar el humo.

## P261c

Evitar respirar el gas.

## P261d

Evitar respirar la niebla.

## P261e

Evitar respirar los vapores.

## P261f

Evitar respirar el aerosol.

## P261g

Evitar respirar la niebla/los vapores/el aerosol.

## P262

Evitar el contacto con los ojos, la piel o la ropa.

## P263

Evitar el contacto durante el embarazo/la lactancia.

## P264

Lavarse concienzudamente tras la manipulación.

## P270

No comer, beber ni fumar durante su utilización.

## P271

Utilizar únicamente en exteriores o en un lugar bien ventilado.

## P272

Las prendas de trabajo contaminadas no podrán sacarse del lugar de trabajo.

## P273

Evitar su liberación al medio ambiente.

## P280

Llevar guantes/prendas/gafas/máscara de protección.

## P280a

Llevar guantes de protección / gafas de protección / máscara de protección.

## P280b

Llevar guantes de protección / gafas de protección.

## P280c

Llevar guantes de protección / máscara de protección.

## P280d

Llevar prendas de protección / gafas de protección.

## P280e

Llevar prendas de protección / máscara de protección.

## P280f

Llevar prendas de protección.

- P280g**  
Llevar guantes de protección.
- P280h**  
Llevar guantes de protección / prendas de protección.**P280i**  
Llevar gafas de protección / máscara de protección.
- P280j**  
Llevar máscara de protección.
- P282**  
Llevar guantes que aislen del frío/gafas/máscara.
- P283**  
Llevar prendas ignífugas/resistentes al fuego/resistentes a las llamas.
- P284**  
Llevar equipo de protección respiratoria.
- P301**  
EN CASO DE INGESTIÓN:
- P302**  
EN CASO DE CONTACTO CON LA PIEL:
- P303**  
EN CASO DE CONTACTO CON LA PIEL (o el pelo):
- P304**  
EN CASO DE INHALACIÓN:
- P305**  
EN CASO DE CONTACTO CON LOS OJOS:
- P306**  
EN CASO DE CONTACTO CON LA ROPA:
- P308**  
EN CASO DE exposición manifiesta o presunta:
- P310**  
Llamar inmediatamente a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico.
- P311**  
Llamar a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico.
- P312**  
Llamar a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico en caso de malestar.
- P313**  
Consultar a un médico.
- P314**  
Consultar a un médico en caso de malestar.
- P315**  
Consultar a un médico inmediatamente.
- P320**  
Se necesita urgentemente un tratamiento específico (ver en esta etiqueta).
- P321**  
Se necesita un tratamiento específico (ver en esta etiqueta).
- P330**  
Enjuagarse la boca.
- P331**  
NO provocar el vómito.
- P332**  
En caso de irritación cutánea:
- P333**  
En caso de irritación o erupción cutánea:
- P334**  
Sumergir en agua fresca/aplicar compresas húmedas.
- P335**  
Sacudir las partículas que se hayan depositado en la piel.
- P336**  
Descongelar las partes heladas con agua tibia. No frotar la zona afectada.
- P337**  
Si persiste la irritación ocular:
- P338**  
Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.
- P340**  
Transportar a la víctima al exterior y mantenerla en reposo en una posición confortable para respirar.
- P342**  
En caso de síntomas respiratorios:
- P351**  
Aclarar cuidadosamente con agua durante varios minutos.
- P352**  
Lavar con agua y jabón abundantes.
- P353**  
Aclararse la piel con agua/ducharse.
- P360**  
Aclarar inmediatamente con agua abundante las prendas y la piel contaminadas antes de quitarse la ropa.
- P361**  
Quitar inmediatamente las prendas contaminadas.
- P362**  
Quitar las prendas contaminadas y lavarlas antes de volver a usarlas.
- P363**  
Lavar las prendas contaminadas antes de volver a usarlas.
- P364**  
Y lavarlas antes de volverla a usar.
- P370**  
En caso de incendio:
- P371**  
En caso de incendio importante y en grandes cantidades:
- P372**  
Riesgo de explosión en caso de incendio.
- P373**  
NO luchar contra el incendio cuando el fuego llega a los explosivos.
- P374**  
Luchar contra el incendio desde una distancia razonable, tomando las precauciones habituales.
- P375**  
Luchar contra el incendio a distancia, dado el riesgo de explosión.
- P376**  
Detener la fuga, si no hay peligro en hacerlo.
- P377**  
Fuga de gas en llamas: No apagar, salvo si la fuga puede detenerse sin peligro.
- P378**  
Utilizar ... para apagarlo.
- P378a**  
Utilizar para apagarlo: CO<sub>2</sub>, polvo extintor o chorro de agua rociada.
- P378b**  
Utilizar para apagarlo: Polvo especial para incendios de metales.
- P378c**  
Utilizar para apagarlo: CO<sub>2</sub>, arena, polvo extintor.
- P378d**  
Utilizar para apagarlo: Agua.
- P378e**  
Utilizar para apagarlo: Agua nebulizada.
- P378f**  
Utilizar para apagarlo: Chorro de agua rociada.
- P378g**  
Utilizar para apagarlo: Espuma.
- P378h**  
Utilizar para apagarlo: Espuma resistente al alcohol.
- P378i**  
Utilizar para apagarlo: Polvo extintor.
- P378j**  
Utilizar para apagarlo: Polvo BC.
- P378k**  
Utilizar para apagarlo: Polvo ABC.
- P378l**  
Utilizar para apagarlo: Dióxido de carbono CO<sub>2</sub>.
- P378m**  
Utilizar para apagarlo: Polvo de carbonato de calcio.
- P378n**  
Utilizar para apagarlo: Cemento.**P378o**  
Utilizar para apagarlo: Arena.
- P378p**  
Utilizar para apagarlo: Arena seca.
- P380**  
Evacuar la zona.
- P381**  
Eliminar todas las fuentes de ignición si no hay peligro en hacerlo.
- P390**  
Absorber el vertido para que no dañe otros materiales.
- P391**  
Recoger el vertido.
- P301+P310**  
EN CASO DE INGESTIÓN: Llamar inmediatamente a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico.
- P301+P312**  
EN CASO DE INGESTIÓN: Llamar a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico si se encuentra mal.
- P301+P330+P331**  
EN CASO DE INGESTIÓN: Enjuagarse la boca. NO provocar el vómito.
- P302+P334**  
EN CASO DE CONTACTO CON LA PIEL: Sumergir en agua fresca/aplicar compresas húmedas.
- P302+P352**  
EN CASO DE CONTACTO CON LA PIEL: Lavar con agua y jabón abundantes.
- P303+P361+P353**  
EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitarse inmediatamente las prendas contaminadas. Aclararse la piel con agua o ducharse.
- P304+P312**  
EN CASO DE INHALACIÓN: Llame a un CENTRO ANTIVENENOSO o a un médico si se encuentra mal.
- P304+P340**  
EN CASO DE INHALACIÓN: Transportar a la víctima al exterior y mantenerla en reposo en una posición confortable para respirar.
- P305+P351+P338**  
EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.
- P306+P360**  
EN CASO DE CONTACTO CON LA ROPA: Aclarar inmediatamente con agua abundante las prendas y la piel contaminadas antes de quitarse la ropa.
- P308+P311**  
EN CASO DE exposición demostrada o supuesta: Llamar a un CENTRO DE TOXICOLOGÍA/médico/...
- P308+P313**  
EN CASO DE exposición manifiesta o presunta: Consultar a un médico.
- P231+P232**  
Manipular en gas inerte. Proteger de la humedad.
- P332+P313**  
En caso de irritación cutánea: Consultar a un médico.
- P333+P313**  
En caso de irritación o erupción cutánea: Consultar a un médico.
- P335+P334**  
Sacudir las partículas que se hayan depositado en la piel. Sumergir en agua fresca/aplicar compresas húmedas.
- P235+P410**  
Conservar en un lugar fresco. Proteger de la luz del sol.
- P337+P313**  
Si persiste la irritación ocular: Consultar a un médico.
- P342+P311**  
En caso de síntomas respiratorios: Llamar a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico.
- P361+P364**  
Quitar inmediatamente toda la ropa contaminada y lavarla antes de volverla a usar.
- P362+P364**  
Quitar la ropa contaminada y lavarla antes de volverla a usar.
- P370+P376**  
En caso de incendio: Detener la fuga, si no hay peligro en hacerlo.
- P370+P378**  
En caso de incendio: Utilizar ... para apagarlo.
- P370+P378a**  
En caso de incendio: Utilizar para apagarlo: CO<sub>2</sub>, polvo extintor o chorro de agua rociada.
- P370+P378b**  
En caso de incendio: Utilizar para apagarlo: Polvo especial para incendios de metales.
- P370+P378c**  
En caso de incendio: Utilizar para apagarlo: CO<sub>2</sub>, arena, polvo extintor.
- P370+P378d**  
En caso de incendio: Utilizar para apagarlo: Agua.
- P370+P378e**  
En caso de incendio: Utilizar para apagarlo: Agua nebulizada.
- P370+P378f**  
En caso de incendio: Utilizar para apagarlo: Chorro de agua rociada.
- P370+P378g**  
En caso de incendio: Utilizar para apagarlo: Espuma.
- P370+P378h**  
En caso de incendio: Utilizar para apagarlo: Espuma resistente al alcohol.
- P370+P378i**  
En caso de incendio: Utilizar para apagarlo: Polvo extintor.
- P370+P378j**  
En caso de incendio: Utilizar para apagarlo: Polvo BC.
- P370+P378k**  
En caso de incendio: Utilizar para apagarlo: Polvo ABC.
- P370+P378l**  
En caso de incendio: Utilizar para apagarlo: Dióxido de carbono CO<sub>2</sub>.
- P370+P378m**  
En caso de incendio: Utilizar para apagarlo: Polvo de carbonato de calcio.
- P370+P378n**  
En caso de incendio: Utilizar para apagarlo: Cemento.
- P370+P378o**  
En caso de incendio: Utilizar para apagarlo: Arena.
- P370+P378p**  
En caso de incendio: Utilizar para apagarlo: Arena seca.
- P370+P380**  
En caso de incendio: Evacuar la zona.
- P370+P380+P375**  
En caso de incendio: Evacuar la zona. Luchar contra el incendio a distancia, dado el riesgo de explosión.
- P371+P380+P375**  
En caso de incendio importante y en grandes cantidades: Evacuar la zona. Luchar contra el incendio a distancia, dado el riesgo de explosión.
- P401**  
Almacenar ...
- P401a**  
Almacenar conforme a la reglamentación local/regional/nacional/internacional.
- P402**  
Almacenar en un lugar seco.
- P403**  
Almacenar en un lugar bien ventilado.
- P404**  
Almacenar en un recipiente cerrado.

**P405**

Guardar bajo llave.

**P406**

Almacenar en un recipiente resistente a la corrosión con revestimiento interior resistente.

**P407**

Dejar una separación entre los bloques/los palés de carga.

**P410**

Proteger de la luz del sol.

**P411**

Almacenar a temperaturas no superiores a ...°C/ ...°F.

**P411a**

Almacenar a temperaturas no superiores a ...°C.

**P411b**

Almacenar a temperaturas no superiores a ...°F.

**P412**

No exponer a temperaturas superiores a 50 °C/122 °F.

**P413**

Almacenar las cantidades a granel superiores a ...kg/ ...lbs a temperaturas no superiores a ...°C/ ...°F.

**P413a**

Almacenar las cantidades a granel superiores a ...kg a temperaturas no superiores a ...°C.

**P413b**

Almacenar las cantidades a granel superiores a ...lbs a temperaturas no superiores a ...°F.

**P420**

Almacenar alejado de otros materiales. **P420a**

Almacenar alejado de alimentos.

**P420b**

Almacenar alejado de materiales inflamables.

**P420c**

Almacenar alejado de agentes oxidantes.

**P420d**

Almacenar alejado de agentes reductores.

**P420e**

Almacenar alejado de agua.

**P420f**

Almacenar alejado de metales.

**P420g**

Almacenar alejado de ácidos.

**P420h**

Almacenar alejado de agentes alcalinos (lejías).

**P422**

Almacenar el contenido en ...

**P422a**

Almacenar el contenido en gas inerte.

**P422b**

Almacenar el contenido en gas protector.

**P422c**

Almacenar el contenido en disolvente.

**P422d**

Almacenar inmerso en agua.

**P422e**

Almacenar inmerso en petróleo.

**P422f**

Almacenar inmerso en nitrógeno.

**P402+P404**

Almacenar en un lugar seco.

**P403+P233**

Almacenar en un lugar bien ventilado. Mantener el recipiente cerrado herméticamente.

**P403+P235**

Almacenar en un lugar bien ventilado. Mantener en lugar fresco.

**P410+P403**

Proteger de la luz del sol. Almacenar en un lugar bien ventilado.

**P410+P412**

Proteger de la luz del sol. No exponer a temperaturas superiores a 50 °C/122 °F.

**P411+P235**

Almacenar a temperaturas no superiores a ...°C/ ...°F. Mantener en lugar fresco.

**P411a+P235**

Almacenar a temperaturas no superiores a ...°C. Mantener en lugar fresco.

**P411b+P235**

Almacenar a temperaturas no superiores a ...°F. Mantener en lugar fresco.

**P501**

Eliminar el contenido/el recipiente en ...

**P501a**

Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.

**P502**

Pedir información al fabricante o proveedor sobre su recuperación o reciclado

## I. Geltungsbereich und Einbeziehung

1. Es gelten ausschließlich unsere AGB. Hiervon abweichende AGB des Kunden werden nur durch ausdrückliche Vereinbarung in Schriftform oder durch Erklärungen mit qualifizierter elektronischer Unterschrift wirksam einbezogen. Nach Vertragsabschluss ist die Einbeziehung abweichender AGB formfrei möglich.
2. Unsere AGB gelten nur gegenüber Unternehmen und juristischen Personen des öffentlichen Rechts (einschließlich den nicht rechtsfähigen Anstalten d.ö.R.); sie gelten auch für zukünftige Verträge mit diesen, ohne dass es erneuter Vereinbarung ihrer Einbeziehung bedarf.

## II. Bindung an Angebote, Angaben bei Vertragsabschluss, Abweichungen von Angaben bei Vertragsabschluss

1. Wir sind berechtigt, unsere Angebote bis zur Annahme zu widerrufen, es sei denn wir bezeichnen unser Angebot als bindend.
2. Auf unserer Webseite, in Katalogen oder ähnlichen Unterlagen enthaltene die Leistung oder das Produkt beschreibende Angaben sowie öffentliche Äußerungen von uns oder von Herstellern sind nicht verbindlich, es sei denn die dort genannte Eigenschaft wurde als Beschaffenheit der Ware mit dem Kunden vereinbart oder der Kunde kann sie aufgrund dieser oder anderer öffentlicher Äußerungen erwarten.
3. Abweichungen von vereinbarten Produkt- oder Leistungseigenschaften berühren nicht die Erfüllung von Verträgen, sofern sie dem Kunden zumutbar sind, den vertragsmäßigen Gebrauch nicht oder nur unwesentlich einschränken und das Vorhandensein der Eigenschaft nicht von uns garantiert oder zugesichert wurde oder für uns erkennbar war, dass die vereinbarte Eigenschaft für den Kunden von besonderer Bedeutung ist, insbesondere wenn durch die Abweichung von ihr der Vertragszweck gefährdet würde.

## III. Preisangaben, Preise, Zuschläge, Zahlungsbedingungen, Verzug

1. Mit uns vereinbarte Preise sowie unsere Katalogpreise verstehen sich bei Inlandslieferungen netto frei Haus, d.h. einschließlich Anlieferung und Verpackung und sind zahlbar ohne Abzug. Bei Mindermengen, Gefahrgut und Kühlsendungen erheben wir grundsätzlich zum vereinbarten Preis einen Zuschlag.
2. Unsere Preisangaben sind nur verbindlich nach Maßgabe der nachstehenden Ziff. 3.
3. Bei einer vereinbarten Liefer- oder Leistungszeit von mehr als drei Monaten sind wir berechtigt, die Preise entsprechend in der Zeit zwischen Vertragsschluss und Lieferung eingetretener Preissteigerungen auf unseren Beschaffungsmärkten zu erhöhen und verpflichtet, entsprechend in dieser Zeit dort eingetretener Preiser-niedrigungen zu senken. Wir sind – unabhängig von der vereinbarten Lieferzeit – berechtigt und verpflichtet, den Preis unserer Leistungen dem Marktpreis entsprechend anzupassen, sofern dieser sich zwischen Vertragsschluss und Leistung bzw. Lieferung um mehr als 4,5% geändert hat.
4. Dauert der Verzug des Kunden länger als 30 Kalendertage oder wird Antrag auf Eröffnung des Insolvenzverfahrens über sein Vermögen gestellt, sind wir berechtigt, sämtliche Forderungen gegen den Kunden sofort fällig zu stellen, sämtliche Lieferungen und Leistungen zurückzuhalten und sämtliche Rechte aus Eigentums- vorbehalten geltend zu machen.
5. Der Kunde kann nur mit unbestrittenen oder rechtskräftig festgestellten Forderungen aufrechnen oder ein Zurückbehaltungsrecht geltend machen.

## IV. Lieferung, Liefertermin, Lieferverzug

1. Vereinbarte Liefertermine gelten als eingehalten, wenn die Ware zum vereinbarten Liefertermin dem Transportunternehmen übergeben wurde. Wir melden dem Kunden auf Wunsch die Versandbereitschaft der Ware.
2. Der Liefertermin wird nach unserem voraussichtlichen Leistungsvermögen vereinbart und versteht sich vorbehaltlich von uns nicht zu vertretender Umständen und Ereignisse, die bei Vertragsschluss nicht gegeben waren oder uns weder bekannt waren noch bekannt sein mussten, unabhängig davon, ob diese Umstände oder Ereignisse bei uns oder beim Hersteller eintreten. Derartige Ereignisse verlängern den Liefertermin entsprechend, und zwar auch dann, wenn sie während eines bereits eingetretenen Verzuges auftreten. Verlängert wird auch eine in diesem Falle evtl. vom Kunden gesetzte Frist um die Dauer des unvorhergesehenen Ereignisses.
3. Sollten wir mit einer Lieferung mehr als 8 Wochen in Verzug geraten, kann der Kunde nach einer schriftlich gesetzten, angemessenen Frist zur Leistung vom Vertrag zurücktreten. In die Berechnung der Verzugsdauer sind die von uns nicht zu vertretenden Lieferverzögerungen i.S.d. Ziff. IV. 2 nicht mit einzuberechnen.
4. Wir behalten uns das Recht vor, vom Vertrag zurückzutreten, wenn eine von uns nicht zu vertretende Lieferverzögerung i.S.d. Ziff. IV. 2 länger als 8 Wochen andauert.
5. Wir sind zu Teillieferungen in zumutbarem Umfang berechtigt, sollte auf unseren Beschaffungsmärkten ein Beschaffungsspass bestehen.

## V. Eigentumsvorbehalt

1. Die Ware bleibt unser Eigentum bis zur Bezahlung sämtlicher, auch künftig entstehender Forderungen gegen den Kunden, gleich aus welchem Rechtsgrund. Hierzu gehören auch bedingte Forderungen.
2. Der Kunde darf Vorbehaltsware im ordnungsgemäßen Geschäftsbetrieb, und zwar gegen Barzahlung oder unter Eigentumsvorbehalt, veräußern; zu anderen Verfügungen, insbesondere zur Sicherheitsübereignung und zur Verpfändung, ist er nicht berechtigt.
3. Der Kunde tritt zur Sicherung unserer Ansprüche – gleich aus welchem Rechtsgrund (vergl. Ziff. V.1.) – schon jetzt von seinen Forderungen aus Lieferungen, in denen unsere Vorbehaltsware enthalten ist, jeweils den Betrag mit allen Nebenrechten an uns ab, der unserem Rechnungspreis einschließlich Umsatzsteuer für die enthaltene Vorbehaltsware entspricht.
4. Der Kunde bleibt auch nach der Abtretung zur Einziehung der Forderungen berechtigt, vorausgesetzt er ist zur Zeit der Forderungseinziehung nicht verpflichtet, Insolvenzantrag zu stellen und willens und in der Lage, seinen Zahlungsverpflichtungen uns gegenüber nachzukommen.
5. Übersteigt der Wert der Gesamtheit der uns zustehenden Sicherheiten die Höhe der Gesamtheit unserer Forderungen um mehr als 30% werden wir Sicherheiten nach unserer Wahl auf Verlangen des Kunden freigeben. Fällt die Umsatzsteuer gemäß §§ 170 Abs. 2, 171 Abs. 2, 3 InsO bei uns an, erhöht sich diese Grenze auf 40%.
6. Der Kunde hat uns den Zugriff Dritter auf die Vorbehaltsware oder die uns abgetretenen Forderungen sofort schriftlich mitzuteilen und uns in jeder Weise bei der Intervention zu unterstützen. Die Kosten hierzu trägt der Kunde, wenn die Intervention erfolgreich war, jedoch beim Beklagten als Kostenschuldner die Zwangsvollstreckung vergeblich versucht wurde.
7. Erkennt das Sitzland des Kunden den Eigentumsvorbehalt nicht an, so sind wir berechtigt, gestattet es aber dem Verkäufer, sich andere ähnliche Rechte an dem Liefergegenstand vorzubehalten, so ist der Kunde verpflichtet, uns diese Rechte einzuräumen.

## VI. Gefahrübergang, Versicherung

1. Die Gefahr geht mit Übergabe an die Transportperson, deren Beauftragten oder andere Personen, die von uns benannt sind, auf den Kunden über, es sei denn die Ware wird mit eigenen Leuten oder eigenen Fahrzeugen zum Kunden gebracht. Soweit sich der Versand ohne unser Verschulden verzögert oder unmöglich wird, geht die Gefahr mit Meldung der Versandbereitschaft auf den Kunden über. Diese Gefahrübergangsbestimmungen gelten auch bei Rücksendungen nach Mängelbe-seitigung, entgeltlicher Serviceleistung oder Ersatzlieferung an den Kunden.
2. Auf Verlangen des Kunden wird die Sendung auf seine Kosten gegen die von ihm bezeichneten Risiken – soweit mit für uns mit zumutbarem Aufwand möglich – versichert.

## VII. Wichtige Hinweise zu unseren Produkten

1. Lagerung: Bei sämtlichen Substanzen geben wir Lagertemperaturen an, die wir für mehrmonatige Lagerung vorschlagen. Da auch solche Substanzen nach unserer Erfahrung einen mehrtägigen Transport in der Regel ohne Qualitätsverlust überstehen, liefern wir sie nur auf besonderen Wunsch und gegen Aufpreis als Kühlsendung aus.
2. Kühlsendung: Besonders empfindliche Präparate werden als Kühlsendung gegen Zuschlag verschickt.
3. Beschränkte Produktverwendung: Von SERVA gelieferte Produkte sind ausschließlich für Forschungs- und sonstige Laboratoriumszwecke bestimmt. Sie dürfen nur in Laboratorien unter Aufsicht hierfür fachlich qualifizierter Personen verwendet werden. Die Weiterveräußerung oder sonstige Weitergabe unserer Produkte an Privatpersonen ist unzulässig. SERVA ist berechtigt, vom Kunden eine schriftliche Bestätigung zu verlangen, dass das betreffende Produkt für nicht erlaubte Anwendungen weder bezogen noch weiterveräußert wird.
4. Gifte: Giftige Stoffe werden nur aufgrund schriftlicher Bestellung an technische Gewerbetriebe, Wiederverkäufer, öffentliche Forschungs-, Untersuchungs- oder Lehranstalten geliefert. Die Bestellung muss von einer zur Vertretung berechtigten Person handschriftlich unterzeichnet sein und den vollen Namen dieser Person ersichtlich machen. Giftige Stoffe dürfen nur von geschultem Personal unter Beachtung entsprechender Sicherheitsvorkehrungen gehandhabt werden.
5. Sicherheitsdatenblatt: Auf Anforderung übersendet SERVA kostenlos zu jedem Produkt ein Sicherheitsdatenblatt.

## VIII. Mängel, Verjährung

1. Der Kunde hat die Lieferung/Leistung unverzüglich – soweit zumutbar – zu untersuchen und erkennbare Mängel unverzüglich schriftlich und – soweit zumutbar – substantiiert geltend zu machen.
2. Bei Mängeln sind wir entgegen § 439 Abs. 1 BGB nach unserer Wahl zur Mängelbeseitigung oder Ersatzlieferung berechtigt. Das Recht des Kunden, bei Fehlschlagen der Nacherfüllung nach seiner Wahl zu mindern oder zurückzutreten, bleibt unberührt.
3. An Stelle der gemäß § 438 Abs. 1 Nr. 3 BGB geltenden Verjährungsfrist, gilt eine solche von nur einem Jahr. Für Ansprüche nach IX.1 und für solche wegen grober Fahrlässigkeit und Vorsatz gilt diese Verkürzung der Verjährungsfrist nicht.
4. Weitergehende Ansprüche des Kunden wegen Mängeln der Ware sind nach Maßgabe von Ziffer IX ausgeschlossen.

## IX. Haftungsbeschränkung

1. Wir haften dem Kunden aus gesetzlichen oder vertraglichen Haftungstatbeständen unbeschränkt (i) im Falle des Vorsatzes oder der groben Fahrlässigkeit, (ii) bei Verletzung von Leben und Körper, (iii) im Umfang einer von uns übernommenen Garantie, (iv) nach den Vorschriften des Produkthaftungsgesetzes, (v) nach den gesetzlichen Vorschriften über die Zufalls- und Gefährdungshaftung sowie (vi) wenn wir Mängel arglistig verschweigen.
2. Ist kein Fall von Ziff. IX gegeben, gilt folgendes:
  - a. Im Falle der groben Fahrlässigkeit von Erfüllungsgehilfen, die nicht Organe oder leitende Angestellte sind und keine Pflicht verletzen, die für die Erreichung des Vertragszwecks wesentlich ist („Kardinalspflicht“) haften wir bei Eintritt eines vorhersehbaren typischen Schadens nur bis zu einem Betrag von EUR 100.000,-. Sollte in einem solchen Fall unsere Haftpflichtversicherung eintreten, so haften wir darüber hinaus bis zur Höhe von deren Eintritt, sofern dieser Betrag höher ist.
  - b. Im Falle der leichten Fahrlässigkeit haften wir nur für die Verletzung von Vertragspflichten, die für die Erreichung des Vertragszwecks wesentlich sind („Kardinalspflichten“). In diesen Fällen ist unsere Haftung jedoch auf vorhersehbare typische Schäden und einen Betrag von EUR 50.000,- begrenzt.
  - c. Sollte in einem solchen Fall unsere Haftpflichtversicherung eintreten, so haften wir darüber hinaus bis zur Höhe von deren Eintritt, sofern dieser Betrag höher ist.
3. Die vorstehenden Bestimmungen gelten auch für die persönliche Haftung unserer Mitarbeiter, Vertreter und Organe.

## X. Gültigkeitsbestimmung

Wenn einzelne Bestimmungen dieser AGB unwirksam sind oder werden, bleibt die Gültigkeit der übrigen davon unberührt.

## XI. Erfüllungsort, Gerichtsstand

Erfüllungsort für unsere vertraglichen Pflichten und Gerichtsstand für sämtliche Streitigkeiten aus dem Vertrag ist Heidelberg. Wir dürfen den Kunden auch an seinem Sitz oder gewöhnlichen Aufenthalt verklagen.

## XII. Anwendbares Recht

Es gilt das Recht Deutschlands.

Stand: 21.07.2018



## I. Scope and Incorporation

1. Our Terms and Conditions of Sale and Supply (TCS&S) apply exclusively. Deviating Conditions of Purchase of the customer shall not be effective unless we expressly accept them in writing or by Email with qualified electronic signature. After formation of contract, deviating Conditions of Purchase may be integrated formlessly.
2. Our TCS&S shall only apply towards customers that are businesses in the sense of section 14 of the German Civil Code, or public law entities (comprising such not having the status of a legal person).
3. Our TCS&S apply on all future relations between the parties, even if not agreed upon expressly.

## II. Commitment of Offers, Specifications, Deviations from Specifications

1. We reserve the right to revoke our offers until their acceptance unless we designate them as binding.
2. Product characteristics mentioned on our website, applicable catalogues or similar materials are not binding, unless such characteristics were agreed upon with the customer or the customer relies on them legitimately due to our public utterance.
3. Deviations from product characteristics agreed upon shall be deemed according to the contract if the deviation reasonably has to be accepted by the customer, or does not or not substantially reduce the suitability of the product for the contractually presupposed use, unless we represented the missing characteristic or could realize that it was of major importance for the customer, or its absence endangers the sense of the contract.

## III. Prices, Payment

1. All prices are net prices, computed in EURO, exclusive value-added tax (VAT). For domestic deliveries we do not charge packaging, transportation, or other incidental costs.
2. Our prices are binding according to below standing para. III. 3.
3. If lead times agreed upon are more than 3 months, we may increase or have to reduce the prices agreed upon in the scope of market prices, if, after formation of the contract our costs increase or decrease, especially due to changes of cost of materials. Irrespective of the lead time agreed upon, we may have to adapt our price to the market price, if such has changed more than 4.5% between the date of contract formation and the delivery date agreed upon.
4. If customer's default with a payment lasts longer than 30 calendar days, or a insolvency petition is filed against customer, we shall be entitled to set due and payable the whole of the price of all goods bought or agreed to be bought by the customer, to retain all deliveries and services, and to demand return of the reserved goods or to collect them from third party areas and take possession of them.
5. The customer shall not be entitled to any right of retention or refusal or offset of his counterclaims against our claims unless the counterclaims the customer exercises retention or refusal for or sets off against our claims are uncontested or res judicata.

## IV. Delivery, Delivery Date, Default of Delivery

1. Deadlines for deliveries are deemed to have been met when the goods are handed over to the forwarding agent. We shall notify the customer on its request of the readiness for shipment.
2. Deadlines for deliveries are agreed upon on the basis of our expected ability to perform and are subject to all facts, events and circumstances not attributable to us and not given at the time of the formation of contract. Such circumstances are especially force majeure, and other unforeseeable events. Such circumstances lead to an extension of the delivery date, even if occurring during our default with delivery. In such case, also an additional period fixed by the customer, is extended by the duration of such circumstances.
3. If we are in default of delivery for more than eight weeks, customer may rescind the contract after fruitless expiration of a reasonable additional period fixed by customer. We compute periods of default regardless of circumstances not attributable to us, such as mentioned in para. IV. 2.
4. We reserve the right to rescind the contract in cases of a delay in the delivery not attributable to us, such as mentioned in para. IV. 2., lasting more than eight weeks.
5. Partial deliveries and services shall be acceptable if we have a (i) justified interest in these, including but not limited to cases of bottlenecks in our supply markets and (ii) these are acceptable to the customer.

## V. Retention of Title

1. We retain the title in any items delivered by us prior to the receipt of all payments due from customer's business transactions with us, irrespective of their legal grounds. Claims subject to a condition precedent are included.
2. Until payment in full of the purchase price, customer shall not pledge the goods, assign or transfer them as security, or otherwise charge them with the rights of any third party, but may sell them in the ordinary course of business. The customer shall make the passing of title of the resold goods subject to their full payment.
3. The customer assigns already now any of its claims resulting from the resales, containing any items subject to retention of title, including any associated rights. However, the assignment shall cover only the amount of the price we quoted, including VAT.
4. The customer is entitled to collect the purchase prices from resold goods until further notice. If we set due and payable the whole of the price of all goods bought or agreed to be bought by the customer pursuant to para. III. 4., customer is obliged to inform its buyers from the assignment pursuant to para V. 3, to provide us all necessary information, present all relevant documents, resp. make available to us its bookkeeping for information purposes.
5. If the value of the security provided to us exceeds the value of the claims to be safeguarded by more than 30 per cent, we shall, at the customer's request, bring the excess coverage down to 30 per cent by releasing security of our own choice.
6. We shall be notified without undue delay of any third-party seizure or other event affecting our property and customer has to give us reasonable support with our intervention. Customer has to bear the cost of such intervention having been successful but the costs not being recoverable from the defendant and compulsory execution against the defendant being fruitless.
7. If the law in customer's country does not recognize retention of title, but allows us to retain other rights in the delivery, the customer shall assign such rights to us.

## VI. Passing of Risk, Insurance

1. The risk of loss and/or damage to goods supplied by us shall pass to the Customer when they are handed over to the transport person, the transport person's mandatory or other person we authorized, unless we deliver the goods with our own employees or vehicles to the customer. Should shipment be delayed due to circumstances beyond our control, the

risk shall pass to the customer upon notification of readiness for shipment. These provisions about passing of risk also apply on returns after correction of faults, repair works at customer's cost, and replacement delivery.

2. On request of the customer and at its cost, we will insure the goods delivered against the risks notified to us by the customer.

## VII. Important Information on our Products

1. Storage: We recommend temperatures that enable the goods to be stored for several months. As experience has shown, such goods can be transported over several days without loss of quality. Thus, we will only ship such goods as refrigerated shipments on special request of purchaser and at an additional charge.
2. Refrigerated Shipments: Particularly unstable items will be shipped in insulated packaging as refrigerated cargo at an additional charge.
3. Limited Usage: Products supplied by us are for in vitro, laboratory, and research use only. All our products may only be used within the confines of a laboratory and under the supervision of a qualified technical person. The further sale or passing on of our products to private persons is forbidden. At our own discretion, we may request the purchaser to provide us with written confirmation that the goods purchased are not used for applications other than laboratory or research use or are resold only for such purposes.
4. Poisons: Toxic substances are only shipped to industrial users, agents, qualified research-, hygiene- and teaching institutions on the basis of written purchase orders. The full name of the individual responsible for purchasing must be clearly visible on the order. Toxic substances may not be passed on to private individuals; toxic substances may only be used by qualified personnel in accordance with all necessary safety regulations.
5. Safety Data Sheet: On customer's request, we will send customer a safety data sheet about each product.

## VIII. Warranty

1. Customer has, without undue delay, to examine the goods and notify us in writing of any recognizable defects and shall, as far as possible with reasonable efforts, specify the defects found.
2. In case of warranty, we may, by way of derogation from Sec. 439 of the German Civil Code, at our discretion, repair or replace the delivered goods.
3. The limitation period in cases of deliveries where Section 438 para 2 No. 3 of the German Civil Code (about limitation period) is applicable, is limited to only one year. This time-barring reduction does not apply for claims based on an intentional or grossly negligent breach of duty on our part and for claims, where our liability is not limited pursuant to para IX.1.
4. Any further claims because of defects of the delivered goods shall be excluded unless otherwise provided for under the following section IX.

## IX. Limited Liability

We shall be liable for customer's damage, irrespective of the legal grounds therefore, only insofar as the following terms provide our liability:

1. Irrespective of the legal grounds thereof, our liability is unlimited in case of (i) any form of intent; (ii) personal injuries, including such followed by death; (iii) breach of a guarantee, as far as our guarantee goes; (iv) liability pursuant to the German Product Liability Act or any other mandatory statutory liability regulations; and (v) misrepresentation.
2. In all other cases of our liability, the following provisions apply:
  - a. In case of gross negligence of persons, we use to perform our obligation, our liability is - irrespective of the legal grounds thereof - limited to 100,000 EUR and we are liable only for the foreseeable damage typical to such contracts, provided that such persons are no organ or member of the executive staff and do not breach material contractual obligations whose fulfillment is necessary to attain the purpose of the contract („cardinal obligations“). In all other cases of gross negligence, our liability is unlimited.
  - b. In case of slight or normal negligence we are liable only if we breach material contractual obligations whose fulfillment is necessary to attain the purpose of the contract („cardinal obligations“) and our liability is limited to 50,000 EURO - irrespective of the legal grounds for our liability.
  - c. Should, in a case our liability is limited to a certain amount, the amount (principally) covered by our insurance exceed such limitation, we are liable to the amount of such insurance sum.
3. The above provisions apply accordingly for the personal liability of our employees, representatives and organs.

## X. Severability

The invalidity or non-enforceability of any term of the present General Conditions of Sale and Supply shall not affect the validity of the remaining terms and conditions thereof.

## XI. Place of Performance, Jurisdiction, Applicable Law, Interpretation of Terms of Trade

1. Place of performance for all our contractual obligations is D-69115 Heidelberg. Place of jurisdiction for all disputes arising out of the contractual relationship is Heidelberg. We have the option to sue the customer at its general place of jurisdiction.
2. German law shall apply.
3. Customary terms of trade shall be interpreted in accordance with the INCOTERMS current at the time.

## XII. About SERVA

1. SERVA is a limited liability company registered in the commercial register of the Local Court of Heidelberg und HRB No. 336136, duly incorporated for an unlimited duration, and validly existing under the laws of Germany.
2. Our registered offices are at Carl-Benz-Strasse 7, D-69115 Heidelberg, Germany. This address shall be used for all notices.
3. Our taxpayer's identification number for value-added tax (Umsatzsteueridentnummer) is DE 812517285.

State: 21. July 2018



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