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SERVA
Electrophoresis

Catalog 2014

Biochemicals A-Z

Sample Preparation

Electrophoresis

Collagenase & Neutral Protease

Life Sciences

Enzymology

Microscopy

Ion Exchange Media



SERVA

Electrophoresis

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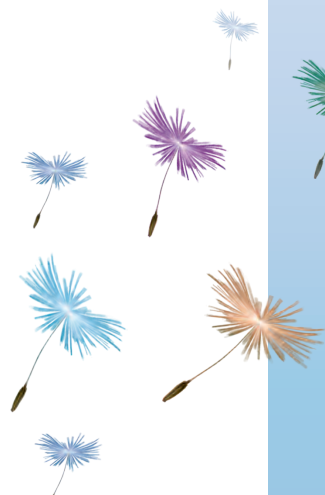
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For more than 60 years,
SERVA has been providing innovative products
and services to the research
community in the life sciences market.



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Offering a portfolio of more than 2,500 products, SERVA is serving life scientists in academic research and commercial organizations, worldwide. Our products help to proceed in the laboratory and to simplify the day-to-day work flow for researchers – a comprehensive assortment covering cellular and protein analysis, biochemistry, enzymology, microbiology, microscopy, bioseparation and more.

SERVA Serving Scientists – as recognized leader in providing innovative solutions and technical support, technical competence and total quality management are our basis for continuous improvement and service. Our policy is to pursue the highest standards in product quality, workplace safety and responsibility for the environment we live in. We dedicate expertise and integrity to guarantee consistent product performance and continuity of supply. SERVA is ISO 9001:2008 certified.

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SERVA was founded in 1953 in Heidelberg, Germany, to fulfill the growing demand of the life science research community for excellent quality biochemical reagents in a variety of convenient sizes. Now, after more than six decades, SERVA is the leading and well-known supplier of a broad assortment of life science research products, worldwide. It has always been our mission to focus on customer needs while supplying products of consistent and unparalleled quality.

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60
Serving Scientists
Years



Excellent customer service and outstanding product quality – guaranteed through ISO 9001:2000 certified processes and a well-trained team – are key reasons for choosing SERVA as your partner in life sciences



SERVA product range and new products

Biochemicals A - Z

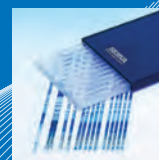
SERVA offers a broad range of biochemicals listed in the section "Biochemicals A-Z". All SERVA products are subject to stringent quality control to meet the specifications, as stated in the Certificate of Analysis provided with each product shipped. Based on the Total Quality Management System, certified ISO 9001:2008, each step in the process of materials management is recorded and documented, lot by lot.

Sample Preparation

Reliable, efficient and easy sample preparation is one of the most crucial steps for achieving optimal and reproducible results in all tasks of protein and nucleic acid analysis. SERVA reagents for sample preparation include Detergents, Protease Inhibitors, Phosphatase Inhibitors, Enzymes and Dialysis Tubings. Additionally, SERVA offers highly user-friendly kits, serving as tools for protein isolation, purification and quantification like SERVA *BluePrep* Kits, IMAC and Glutathione agarose resins, CentriPure and CentriSpin Gel Filtration Columns and Kits for Protein Quantification.

Electrophoresis

As the leading manufacturer of speciality reagents for isoelectric focusing, SERVA has expertise in providing SERVLYT™ PRECOTES™ precast gels, FocusGels and SERVLYT™ carrier ampholytes. We have expanded the range by introducing precast mini slab gels SERVAGEl™ TG PRiME™ (10 x 10 cm) for SDS PAGE and for Clear and Blue Native PAGE. HPE™ - „High Performance Electrophoresis“ is the key technology resolving complex proteome samples in 2D PAGE offering gel strips, large-format SDS gels and the unique HPE™ Tower System. All precast gels are manufactured in Heidelberg. Want to achieve best results in preparing buffers and gels? Use SERVA's new range of „electrophoresis grade“ reagents, featuring performance-tested products. When it comes to sensitive detection using fluorescent staining check out SERVA Lightning Red and SERVA Purple suited for 1D and 2D applications. Quantitative proteomics approaches are supported by the ICPL™ isotopic labelling technology. The „BlueLine“ series provides equipment for electrophoresis and laboratory use.



Collagenase and Neutral Protease

SERVA Collagenase NB qualities are particularly suitable for various tissue isolation applications. The application of pharmaceutical manufacturing standards at our partner Nordmark GmbH & Co KG (Uetersen/Germany) guarantees stringent quality control, reliable lot-to-lot consistency and excellent product performance. TSE safety of the fermentation product has been certified by the European authorities, EDQM and by the supplier's certificate of origins.

Life Sciences

The range of molecular biology grade reagents is well established. These reagents are guaranteed DNase and RNase free. The ready-to-use buffer solutions save you time and labor and guarantee best results. Only high quality, application proved reagents are used. The new Cyanase™ Nuclease is ideal for pre-PCR DNA clean-up. For cell culture applications SERVA offers the new range of amino acids "cell culture grade".

Enzymology

SERVA has continuously extended its range of enzymes and enzyme inhibitors and substrates. More than 60 highly purified enzyme preparations and a variety of coenzymes, cofactors and nucleotides necessary to perform enzymatic assays are now available.

Microscopy

SERVA has been known for many years as a supplier of high-quality reagents for electron and light microscopy. The section "Microscopy" includes many reagents for fixation, dehydration, embedding, cutting, staining and contrasting.

Ion Exchange Media

SERVA is a well-known and established supplier of ion exchange media. We offer a complete range of DOWEX™ anion and cation exchange resins. Our SERDOLIT™ line includes mix-bed ion exchange, PAD adsorber and chelating resins. Ion exchangers are produced for technical purposes (practical grade), the analytical grade qualities are purified by our proprietary method making them suitable for biochemical applications.



The SERVA Website

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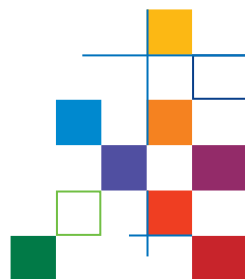
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■ **ABTS**

see 14364 2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)-2NH₄-salt, page 16, 343

■ **Acarbose from *Actinoplanes* sp. ca. 100 FIP-AIU/mg**
contact dried, amorph

(O-4,6-(dideoxy-4-[[[1S-(1 α , 4 α , 5 β , 6 α)]-4,5,6-trihydroxy-3-(hydroxymethyl)-2-cyclohexene-1-yl]amino]- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-O- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-D-Glucose)
C₂₅H₄₅O₁₈N $\diamond$ M_r 645.6 $\diamond$ CAS [56180-94-0]

EINECS 260-030-7 $\diamond$ WGK 1 $\diamond$ HS 29400000

Ca. 100 FIP-AIU/mg (FIP- α -amylase inhibitor unit) using porcine pancreatic α -amylase.

This highly purified acarbose, a pseudotetrasaccharide, inhibits α -amylases [EC 3.2.1.1], α -glucosidases [EC 3.2.1.3], saccharases [EC 3.2.1.48]. Used e.g. in enzymatic conversions and assays where α -amylases, α -glucosidases or saccharases interfere with the reaction.

Purity (HPLC)	95.0 - 101.0
Solubility in water	1400 g/L at 20 °C
Total aerobic microbial count (TAMC)	max. 1000 CFU/g
Total combined yeasts/mould count (TYMC)	max. 100 CFU/g

Unit definition: 1 FIP- α -amylase inhibitor unit (AIU) is the amount of acarbose which will inhibit 2 FIP-units of α -amylase by 50 % at pH 6.8 and 25 °C after previous incubation.

References:

- Truscheit, E. et al. (1981): Chemistry and Biochemistry of Microbial α -Glucosidase Inhibitors; Angew. Chem. Int. Ed. Engl. **20**, 744-761
- Bischoff, H. (1994): Pharmacology of α -Glucosidase Inhibition; Eur. J. Clin. Inv. **24**, suppl. 3, 3-10

Cat.No.	Size
10017.01	100 mg
10017.02	500 mg
10017.03	1 g

■ **2-Acetamido-2-deoxy-D-glucose**

see 10290 N-Acetyl-D-glucosamine, page 3

■ **5-Acetamido-3,5-dideoxy-D-glycero- D-galacto-2-nonulosonic acid**

see 10465 N-Acetylneuraminic acid, page 3

■ **Acetic acid 100 % analytical grade**

C₂H₄O₂ $\diamond$ M_r 60.05 $\diamond$ CAS [64-19-7]



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

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

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

■ **Aceton research grade**

C₃H₆O $\diamond$ M_r 58.08 $\diamond$ CAS [67-64-1]



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

Assay (GC)	min. 99.5 %
Density (20 °C)	0.790 - 0.792
Water	max. 0.2 %
Heavy metals	max. 2 ppm

Cat.No.	Size
45632.01	1 L
45632.02	2,5 L

■ **Acetonitrile Far UV for HPLC**

C₂H₃N $\diamond$ M_r 41.0 $\diamond$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\diamond$ MAK/TRK 20 ml/m³; 34 mg/m³ $\diamond$ EG-Index 608-001-00-3 $\diamond$ GGVSE/
ADR 3 II UN1648 $\diamond$ IATA 3 II UN1648 $\diamond$ WGK 2L $\diamond$ HS 29269095

Assay	min. 99.9 % (GC)
Density (20 °C)	0.782
Boiling point	81.6 °C
Refractive Index	1.344

Maximum Impurity Levels:

Water	max. 0.02 %
Acidity	max. 0.0005 mEq/g
Residue on Evaporation	max. 0.0005 %

Minimum Transmission Levels

1 cm cell compared against HPLC-water	
200 nm	min. 80.0 %
210 nm	min. 90.0 %
220 nm	min. 98.0 %
230 nm	min. 99.0 %

Cat.No.	Size
45606.01	2,5 L

■ **Acetonitrile for HPLC gradient grade**

C₂H₃N $\diamond$ M_r 41.05 $\diamond$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\diamond$ MAK/TRK 20 ml/m³; 34 mg/m³ $\diamond$ EG-Index 608-001-00-3 $\diamond$ GGVSE/
ADR 3 II UN1648 $\diamond$ IATA 3 II UN1648 $\diamond$ EINECS 200-835-2 $\diamond$ WGK 2L $\diamond$
HS 29269095

Assay	min. 99.95 (GC)
Density	0.782
Boiling point	81.6 °C
Refractive index	1.3430 - 1.3450

Maximum Impurity Levels

Water	max. 0.03 %
Acidity	max. 0.001 %
Residue on evaporation	max. 0.0004 %

Maximum Transmission Levels

1 cm cell against HPLC-water	
200 nm	min. 93.0 %
210 nm	min. 96.0 %
220 nm	min. 97.0 %
230 nm	min. 98.0 %
240 nm	min. 99.0 %

Cat.No.	Size
45607.01	2,5 L

■ **Acetonitrile for HPLC**

C₂H₃N $\diamond$ M_r 41.0 $\diamond$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\diamond$ MAK/TRK 20 ml/m³; 34 mg/m³ $\diamond$ EG-Index 608-001-00-3 $\diamond$ GGVSE/
ADR 3 II UN1648 $\diamond$ IATA 3 II UN1648 $\diamond$ EINECS 200-835-2 $\diamond$ WGK 2L $\diamond$
HS 29269095

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 %
Residue on Evaporation	max. 0.0005 %

Minimum Transmission Levels

1 cm cell compared against HPLC-water	
210 nm	min. 93.0 %
240 nm	min. 99.0 %

Exportable in bulk quantities only.

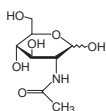
Cat.No.	Size
45605.01	2,5 L

N-Acetyl-D-glucosamine research grade

(2-Acetamido-2-deoxy-D-glucose)
 $C_8H_{15}NO_5$ ♦ M_r 221.2 ♦ CAS [10036-64-3]

EINECS 233-115-1 ♦ WGK 1 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 98.0 %
 $[\alpha]_{20}^{\circ}$ C/D (c= 2 in water) +39.0 ° to 43.0 °



Cat.No.	Size
10290.02	25 g

Acetyl-L-leucyl-L-leucyl-L-argininal

see 51867 Leupeptin, page 63, 139, 352

β-Acetyldigoxin research grade

$C_{43}H_{86}O_{15}$ ♦ M_r 823.0 ♦ CAS [5355-48-6]



DANGER
 H300-H330-H373 ♦ GGVSE/ADR 6.1 I UN2811 ♦
 IATA 6.1 I UN2811 ♦ EINECS 226-337-5 ♦ WGK 3L ♦

HS 29389010

Ph. Eur.

Assay (HPLC) 97.0 - 102.0 %
 Loss on drying max. 1.5 %

Cat.No.	Size
77005.01	50 mg

N-Acetylneuraminic acid research grade

(NANA; 5-Acetamido-3,5-dideoxy-D-glycero- D-galacto-2-nonulosonic acid; Sialic acid)
 $C_{11}H_{19}NO_9$ ♦ M_r 309.3 ♦ CAS [131-48-6]

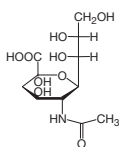
EINECS 205-023-1 ♦ WGK 1 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

Synthetic. Assay with thiobarbituric acid.

Assay (titr.) min. 98.0 %
 $[\alpha]_{25}^{\circ}$ C/D (c=1 in water) -32 ° ± 2 °

References:

- Warren, L. (1959) J. Biol. Chem. **239**, 1971-5
- Hammond, K.S. & Papermaster, D.S. (1976) Anal. Biochem. **74**, 292-7



Cat.No.	Size
10465.02	100 mg

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 (HPLC) min. 98.0 %

References:

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

Cat.No.	Size
10570.01	1 g
10570.02	5 g
10570.03	25 g

Achromycin-HCl

see 35866 Tetracycline-HCl, page 111, 285

Acid Black 1

see 12310 Amido Black 10 B, page 11, 240

Acid Blue 15

see 21490 SERVA Blue W, page 91, 242

Acid Blue 83

see 35051 SERVA Blue R, page 91, 242

Acid Blue 90

see 35050 SERVA Blue G, page 91, 242

Acid Blue 93

see 13645 Aniline Blue, page 13, 369

Acid Red 112

see 33429 Ponceau S, page 83, 241, 372

Acid Red 14

see 14410 Azorubin, page 16, 369

Acid Red 87

see 21005 Eosin Y-Na-salt, page 42, 370

Acid Violet 17

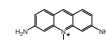
see 35072 SERVA Violet 17, page 97, 243

Acid Violet 19

see 34597 Fuchsin acid, page 46, 371

Acriflavine-HCl research grade

(Trypaflavine HCl)
 CAS [8063-24-9]



DANGER
 H302-H318-H411 ♦ GGVSE/ADR 9 III UN3077 ♦
 IATA 9 III UN3077 ♦ WGK 2L ♦ HS 32041300

A mixture of the hydrochlorides of 3,6-diamino-10- methylacridinium chloride and 3,6-diaminoacridine.

Cat.No.	Size
10671.01	25 g
10671.02	100 g

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-H
 372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK 0,03mg/m³ ♦
 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
10675.01	100 g
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-H
 350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK
 0,03 mg/m³ ♦ 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

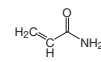
Storage temperature +2 °C to +8 °C

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
10674.02	100 g
10674.03	1 kg



■ **Acrylamide 4X** molecular biology gradeC₃H₅NO ♦ M_r 71.1 ♦ CAS [79-06-1]**DANGER**

H302-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03mg/m³ ♦ 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
10678.03	1 kg

■ **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'-methylenebisacrylamide (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'-methylenebisacrylamide (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'-methylenebisacrylamide (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'-methylenebisacrylamide (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'-methylenebisacrylamide (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 33, 283

■ **Actinase E**see 33635 Pronase E from *Streptomyces griseus* min. 6.0 DMC-U/mg, page 84, 291, 338

Products for Isoelectric Focusing:
see special chapter at p. 190

■ Actinomycin D cryst. research grade

(Dactinomycin; Actinomycin C₁)

C₆₂H₈₆N₁₂O₁₆ ♦ M_r 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

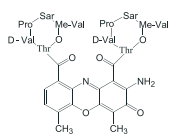
Chromopeptide with antibiotic activity. Contains 2 cyclic peptides bound to the chromophoric phenoxazine ring. Binds specifically to the minor groove of the DNA double helix, and thus prevents it from being a template for RNA synthesis. Antineoplastic agent which inhibits the growth of rapidly dividing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

Assay (HPLC) min. 95.0 %

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
10710.02	25 mg



■ Activated charcoal

see 30890 Norit® A, page 73

■ Adenine analytical grade

(6-Aminopurine)

C₅H₅N₅ ♦ M_r 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

Assay (titr.) 98.0 - 102.0 %

Cat.No.	Size
10739.02	25 g
10739.03	100 g



■ Adenosine research grade

(9-β-D-Ribofuranosyladenine)

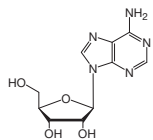
C₁₀H₁₃N₅O₄ ♦ M_r 267.2 ♦ CAS [58-61-7]

EINECS 200-389-9 ♦ WGK 1 ♦ HS 29389090

Assay (HPLC) min. 97.0 %

Water (Loss on drying) max. 0.5 %

Cat.No.	Size
10770.02	25 g



■ Adenosine-5'-diphosphate-Na₂-salt research grade

(ADP)

C₁₀H₁₃N₅O₁₀P₂Na₂ ♦ M_r 471.2 ♦ CAS [16178-48-6]

EINECS 240-314-7 ♦ WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C

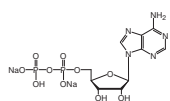
From yeast ribonucleic acid.

Assay (HPLC) min. 94.0 %

ATP max. 1.0 %

Water (KF) max. 7.0 %

Cat.No.	Size
10800.02	1 g
10800.03	5 g



■ Adenosine-5'-phosphate-Na₂-salt analytical grade

(AMP)

C₁₀H₁₂N₅O₇PNa₂·7H₂O ♦ M_r 517.2 ♦ CAS [4578-31-8]

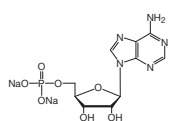
EINECS 224-961-2 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 99.0 %

Water (KF) max. 26.0 %

Cat.No.	Size
10883.01	5 g



■ Adenosine-5'-triphosphate-Na₂-salt cryst. research grade

(ATP)

C₁₀H₁₄N₅O₁₃P₃Na₂ ♦ M_r 551.1 ♦ CAS [987-65-5]

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

Storage temperature -15 °C to -25 °C

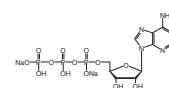
Assay (HPLC)

min. 98.0 %

Water (KF)

max. 8.0 %

Cat.No.	Size
10920.01	1 g
10920.02	5 g
10920.03	25 g
10920.04	100 g



■ Adhesive tape

HS 39269097

33 m x 9 mm x 0.15 mm. Especially suitable as spacer in the preparation of thin layer gels using the flap technique.

Cat.No.	Size
42927.01	1 piece

■ Adogen 464

see 37076 Trioctylmethylammonium chloride, page 114

■ ADP

see 10800 Adenosine-5'-diphosphate-Na₂-salt, page 5, 341

■ Adriamycin HCl Solution

(Doxorubicin-HCl; 14-Hydroxydaunomycin-HCl)



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C *

Anthracycline antibiotic, anti-neoplastic agent (1, 2). Inhibits DNA and RNA synthesis by forming complexes with DNA. Modified spectrofluorometric assay for DNA (3).

Composition 2 mg/ml in 0.9 % NaCl
pH 2.7 - 3.3

References:

1. Tritton, T.R. & Yee, G. (1982) Science **217**, 248-50
2. Leto, G. et al. (1990) Anticancer Res. **10**, 265-9
3. Kennedy, D.G. et al. (1987) Anal. Biochem. **167**, 124-7

Cat.No.	Size
11010.01	1 ml
11010.02	5 ml

■ AEBSF-HCl research grade

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

C₈H₁₀FNO₂S·HCl ♦ M_r 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
12745.02	500 mg
12745.03	1 g

■ Affinity Chromatography

see Chapter Sample Preparation, page 129

■ Aerosporin

see 47976 Polymyxin-B-sulfate, page 82, 282

■ **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/cm², 1.5 % gel) min. 600

Point of solidification 39 - 43 °C

A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.5

525 nm max. 0.45

Loss on drying max. 10.0 %

Ash max. 4.0 %

pH in water (60 °C) 6.0 - 7.0

Cat.No.	Size
11393.02	100 g
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/cm², 1.5 % gel) min. 700

Point of solidification 32 - 35 °C

A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.2

525 nm max. 0.1

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. Economic alternative to cat. no. 11392.

Gel strength (g/cm², 1.5 % gel) > 400

Point of solidification 30 - 40 °C

A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.5

525 nm max. 0.45

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/cm², 1.5 % gel) min. 800

Point of solidification 35 - 43 °C

A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.5

525 nm max. 0.45

Loss on drying max. 15.0 %

Ash max. 1.5 %

pH 1.5 % in water (60 °C) 6.0 - 8.0

Cat.No.	Size
11392.03	1 kg
11392.04	5 kg

■ **Agar Substitute**

see 22168 Gelrite®, page 49, 307, 309

■ **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/cm²

Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size
11380.01	25 g
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.

DNase/RNase-free.

Gelling temperature (1.5 %) 34 - 39 °C

Gel strength (1.5 %) min. 1200 g/cm²

Electro endosmosis (EEO) max. 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, also suitable for pulsed field electrophoresis. Each lot is tested for the absence of *EcoRI* inhibition.

Gelling temperature (1.5 %) 34 - 39 °C

Gel strength (1.5 %) min. 1700 g/cm²

Electro endosmosis (EEO) max. 0.13

Cat.No.	Size
11404.02	25 g
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/cm²

Electro endosmosis (EEO) 0.05 - 0.14

Cat.No.	Size
11408.01	5 g
11408.02	25 g
11408.03	100 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/cm²
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size
11381.01	25 g
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/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size
11382.01	25 g
11382.02	100 g
11382.03	250 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/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size
11383.01	25 g
11383.02	100 g
11383.03	250 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/cm²
Electro endosmosis (EEO) ≤ 0.10

Cat.No.	Size
11384.01	25 g
11384.02	100 g
11384.03	250 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/cm²
Electro endosmosis (EEO) 0.23 - 0.27

Cat.No.	Size
11397.02	25 g
11397.03	100 g
11397.04	250 g

■ Agarose SERVA standard EEO

CAS [9012-36-6]

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

Standardized preparation for most uses in electrophoresis, esp. for immunoelectrophoresis (immunodiffusion) and zone electrophoresis.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.16 - 0.19

Cat.No.	Size
11400.02	25 g
11400.03	100 g
11400.04	250 g
11400.05	1 kg

■ 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.

Gelling temperature (1.5 %) 38 - 43 °C
Gel strength (1.5 %) > 800 g/cm²
Electro endosmosis (EEO) 0

Cat.No.	Size
11402.02	5 g
11402.03	25 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/cm²
Electro endosmosis (EEO) ≤ 0.13

Cat.No.	Size
11405.01	100 g
11405.02	500 g

■ Ala

see 11482 L-Alanine, page 8

■ **L-Alanine** research grade

(Ala; 2-Aminopropanoic acid)
 $C_3H_7NO_2$ ♦ M_r 89.1 ♦ CAS [56-41-7]

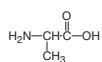
EINECS 200-273-8 ♦ WGK 1L ♦ HS 29224985

Ph.Eur. Non-essential amino acid, which can be synthesized in mammalian cells from pyruvic acid and ammonium ions. For use in bacteriology and tissue culture.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm

■ **References:**

1. Römpp Chemie Lexikon, 10th ed. 1996-1999, Georg Thieme Verlag Stuttgart, New York
2. Müller-Esterl, W. (2011) Biochemie, 2nd ed., Spektrum Akademischer Verlag, Heidelberg



Cat.No.	Size
11482.02	100 g

■ **Albumin bovine, DNase/RNase-free** molecular biology grade

M_r ca. 67 000 ♦ CAS [9048-46-8]

HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin manufactured by a proprietary heat shock precipitation and ultrafiltration process. Especially suitable for use in hybridization and nucleic acid based assays.

Assay (CAF) > 97.0 %
 pH (10 % in H₂O) 6.5 - 7.4
 DNase/RNase not detected

Cat.No.	Size
11967.01	5 g
11967.02	25 g
11967.03	100 g

■ **Albumin bovine** cryst. lyophil.

(BSA; Bovine serum albumin)

M_r 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. Crystal form simplifies handling and weighing.

Assay (CAF) min. 99.0 %
 pH (7 % in H₂O) 5.0 - 5.4
 Moisture (KF) max. 5.0 %

Cat.No.	Size
11920.02	1 g
11920.05	5 g
11920.04	10 g
11920.06	50 g

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

(BSA)

M_r 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, e.g. as protein standard, growth promoter in serum-free media for the cultivation of animal cells, supplement in microbiological nutrient media, diluent/stabilizer in diagnostic systems, stabilizer of isolated enzymes and antibodies or blocking agent to prevent non-specific absorption.

Assay (CAF) min. 98.0 %
 pH (7 % in H₂O) 6.8 - 7.2
 Moisture (KF) max. 5.0 %
 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_r 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 H₂O) 5.2 - 5.6
 Moisture (KFT) max. 5.0 %

Cat.No.	Size
11922.02	25 g
11922.03	100 g

■ **Albumin bovine modified Cohn Fraction V, pH 5.2** lyophil.

(BSA)

M_r 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 stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF) min. 96.0 %
 pH (10 % in H₂O) 5.0 - 5.6

Cat.No.	Size
11941.01	25 g
11941.02	100 g

■ **Albumin egg** lyophil.

(Ovalbumin)

M_r ca. 45 000

HS 35021110

Storage temperature -15 °C to -25 °C

Assay (SDS-PAGE) min. 98.0 %
 Water (%) max. 6.0 %

Cat.No.	Size
11841.01	1 g
11841.02	5 g
11841.03	25 g

■ **Albumin bovine modified Cohn Fraction V, pH 7.0** lyophil.

(BSA)

M_r 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 H₂O) 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 receptor grade lyophil.

(BSA)

 M_r 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; excellent as a protective agents for enzymes, antibodies etc.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ 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
11924.01	5 g
11924.02	25 g
11924.03	100 g
11924.04	500 g

■ Albumin bovine Fraction V, Protease-free lyophil.

(BSA)

 M_r 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. Useful as stabilizing agent for proteins or enzymes in buffers or for lyophilization. Stabilizer for long-term storage of highly diluted antibodies. Essential component for hybridization techniques. Blocking agent to prevent non-specific binding of proteins to microtiter wells in ELISA systems.

Assay (CAF)	min. 98.0 %
Protease (Casein hydrolysis)	not detectable
pH (7 % in H ₂ 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, Fatty Acid Free lyophil.

(BSA)

 M_r 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 ₂ 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
11932.01	5 g
11932.02	25 g
11932.03	100 g

■ Albumin bovine Fraction V, Protease and Fatty Acid free diagnostic grade, lyophil.

(BSA)

 M_r 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 ₂ 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 Low Hormone lyophil.

(BSA)

 M_r ca. 67 000 ♦ CAS [9048-46-8]

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

Storage temperature +2 °C to +8 °C

Albumin purity	> 97.0 %
Total protein	> 92.0 %
pH (10 % solution)	6.5 - 7.4
Mesophilic germs	< 100 CFU/g
Hormones:	
FT4	< 0.04 pg/mg
FT3	< 0.006 pg/mg
Insulin	< 0.002 μU/mg

Cat.No.	Size
11947.01	10 g
11947.02	25 g
11947.03	100 g

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

(BSA)

 M_r 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, 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
11946.01	25 g
11946.02	100 g

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

■ Albumin bovine Fraction V, pH 7.0 microbiological grade, lyophil.

(BSA)

M_r 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 H₂O) 6.8 - 7.2

Cat.No.	Size
11934.01	25 g
11934.02	100 g
11934.03	500 g

■ Albumin bovine cell culture grade

(BSA)

M_r 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 H₂O) 6.5 - 7.5
Endotoxins max. 3 EU/mg

Cohn Analog = registered trademark of Proliant Biologicals, USA.

Cat.No.	Size
47330.01	10 g
47330.02	25 g
47330.03	100 g

■ Albumin bovine Low Endotoxin biotechnology grade

(BSA)

M_r 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 9CFR 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 H₂O) 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
47321.02	100 g
47321.03	500 g

■ Albumin bovine Fraction V, Very Low Endotoxin lyophil.

(BSA)

M_r 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 9CFR 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 H₂O) 6.8 - 7.2
Moisture (KF) max. 5.0 %
Endotoxin (LAL) max. 2 EU/mg

Cat.No.	Size
47324.01	1 g
47324.02	5 g
47324.03	25 g

■ Albumin bovine Fraction V, Very Low Endotoxin, Fatty Acid Free lyophil.

(BSA)

M_r 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, followed by treatment to lower fatty acids and lipids. 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 9CFR 113.

Especially designed as growth factor in albumin supplemented culture media for animal cells and microorganisms. Excellent growth medium supplement for hybridomas and the production of monoclonal antibodies. Suitable for in-vitro binding and transport studies.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 6.8 - 7.2
Total lipids (mg/g) max. 2
Fatty Acids (mg/g) max. 0.2
Moisture (KF) max. 5.0 %
Endotoxin level max. 2 EU/mg
(by Limulus Amebocyte Lysate)

Cat.No.	Size
47299.02	1 g
47299.03	5 g
47299.04	25 g

■ Albumin bovine, 30 % Solution Polymer Enhanced

(BSA)

M_r 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) 0.08 - 0.12 g/dL

Cat.No.	Size
11937.01	25 ml
11937.02	100 ml

SingleQuant Assay Kit for
protein quantification:
see special chapter at p. 134

Albumin human lyophil.

M_r 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 H₂O) 6.5 – 7.4

Cat.No.	Size
11877.01	1 g
11877.02	5 g
11877.03	25 g

Alcian Blue 8 GS

(Alcian Blue 8GX)

C.I.74240 ♦ 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).

λmax. 610 - 625 nm
A 1 cm/0.001 % in water/λmax min. 0.18

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
12021.02	50 g

Aliquat® 336

see 37076 Trioctylmethylammonium chloride, page 114

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_r 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 MgCl₂, 0.1 mM ZnCl₂, 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-Na₂-salt (cat.no. 30770)
- Phenolphthalein diphosphate-Na₂-salt (cat.no. 32050)
- 5-Bromo-4-chloro-3-indoxyl-phosphate-p-toluidine-salt (BCIP) (cat.no. 15247)
- 5-Bromo-4-chloro-3-indoxyl-phosphate-Na₂-salt (cat.no. 15259)
- 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_γ)

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 17

Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

C.I.20470 ♦ C₂₂H₁₄N₆O₉S₂·Na₂ ♦ M_r 616.5 ♦
CAS [1064-48-8]

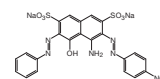
EINECS 213-903-1 ♦ WGK 2L ♦ HS 32041200

λmax. (0.001 % in H₂O) 620 ± 4 nm

References:

1. Wayne, F.P. et al. (1995) J. Biol. Chem. **270** (36), 21404-21410

Cat.No.	Size
12310.01	25 g



Amidosulfo betaine-14

see 20757 ASB-14, page 14, 142, 244

Amidosulfo betaine-16

see 20758 ASB-16, page 15, 142, 244

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

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

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

see 28085 Luminol, page 63, 222, 346

L-2-Amino-3-(4-imidazolyl)-propionic acid

see 24820 L-Histidine base, page 56, 148

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

see 37422 L-Tryptophan, page 118

L-2-Amino-3-methylbutyric acid

see 38064 L-Valine, page 120

L-2-Amino-4-methylpentanoic acid

see 27690 L-Leucine, page 63

L-2-Amino-5-ureido valeric acid

see 17311 L-Citrulline, page 27

6-Amino-n-hexanoic acid

see 12548 ε-Aminocaproic acid, page 12, 137, 224, 243, 350

Aminoacetic acid

see 23395 Glycine, page 53, 247, 355

3-Aminobenzoic acid ethyl ester-methanesulfonate pure

(Tricaine; MS 222)

C₉H₁₁NO₂·CH₃SO₃ ♦ M_r 261.3 ♦ CAS [886-86-2]



WARNING

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

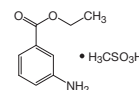
For anesthetization of fish and other cold-blooded animals.

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 13, 280

■ **ε-Aminocaproic acid** analytical grade

(6-Amino-n-hexanoic acid)

 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [60-32-2]

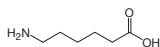
EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

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, 137, 350

■ **[4-(2-Aminoethyl)benzenesulfonyl]fluoride-HCl**

see 31682 PEFABLOC® SC, page 76, 139, 352

■ **Aminoglutaramic acid**

see 22942 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 13, 280

■ **3-Aminophthalhydrazine**

see 28085 Luminol, page 63, 222, 346

■ **2-Aminopropanoic acid**

see 11482 L-Alanine, page 8

■ **6-Aminopurine**

see 10739 Adenine, page 5, 309

■ **Ammonium acetate** molecular biology grade $C_2H_7NO_2$ ♦ M_r 77.08 ♦ CAS [631-61-8]

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

DNase/RNase not detected. Suitable for nucleic acid precipitation. 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.

Assay (titr.) min. 97.0 %

Cat.No.	Size
39750.01	500 g

■ **Ammonium acetate solution, 7.5 M** molecular biology grade $C_2H_7NO_2$ ♦ CAS [631-61-8]

HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 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_4OAc . Two consecutive precipitation steps are enough to remove 99 % of free dNTPs.

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_4Cl ♦ M_r 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_4) max. 0.002 %
 Phosphate (PO_4) max. 0.0002 %

Cat.No.	Size
39752.01	500 g

■ **Ammonium molybdate** analytical grade $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$ ♦ M_r 1235.9 ♦ CAS [12054-85-2]**WARNING**

H302 ♦ EINECS 234-722-4 ♦ WGK 1L ♦ HS 28417000

Suitable for the determination of phosphate and arsenate.

Assay (titr.) 81.0 - 83.0 % as MoO_3
 min. 99.0 % as $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$
 Phosphate max. 0.0005 %

Cat.No.	Size
13370.01	100 g

■ **Ammonium persulfate** electrophoresis grade $(NH_4)_2S_2O_8$ ♦ M_r 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. Suitable 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 persulfate** analytical grade

(APS; Ammonium peroxodisulfate)

 $(NH_4)_2S_2O_8$ ♦ M_r 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

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

Assay (titr.) min. 99.0 %

Cat.No.	Size
13375.01	50 g
13375.05	250 g
13375.03	1 kg

■ **Ammonium sulfate** analytical grade $(NH_4)_2SO_4$ ♦ M_r 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

Ammonium sulfate molecular biology grade

$(\text{NH}_4)_2\text{SO}_4$ ♦ M_r 132.2 ♦ CAS [7783-20-2]

EINECS 231-984-1 ♦ WGK 1 ♦ HS 28332980

DNase/RNase not detected.

Assay (titr.) min. 99.5 %

Cat.No.	Size
39753.01	250 g
39753.02	1 kg

AMP

see 10883 Adenosine-5'-phosphate- Na_2 -salt, page 5, 341

Ampholytes

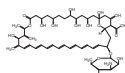
see SERVALT™ Carrier Ampholytes, page 102, 196

Amphotericin B solution sterile filtered

(Fungizone®)

HS 38220000

Storage temperature -15 °C to -25 °C



Macrocyclic polyene antibiotic isolated from *Streptomyces nodosus*. Used in cell and tissue culture against the contamination and growth of yeast and molds. Mechanism of action: binds to cell membrane sterols, especially ergosterol, resulting in a damage of membrane permeability and leakage of intracellular potassium and magnesium ions.

0.25 mg/ml in water. For use, dilute 1:100 (ca. 2.5 µg/ml). Contains Na-deoxycholate.

Fungizone® = registered trademark of E.R. Squibb

References:

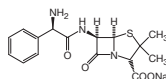
1. Walls, E.V. a. Kay, J.E. (1982) Immunology **47**, 115-21
2. Hartsel, S. a. Bolard, J. (1996) Trends Pharmacol. Sci. **17**, 445-9
3. Ellis, D.(2002) . J. Antimicrob. Chemother. **49** (suppl.), 7-10

Cat.No.	Size
47982.01	25 ml

Ampicillin-Na-salt molecular biology grade

(6-[D-α-aminophenylacetamido]penicillanic acid;
D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{18}\text{N}_3\text{O}_4\text{S}\cdot\text{Na}$ ♦ M_r 371.4 ♦ CAS [69-52-3]



DANGER

H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin. Used in molecular biology for the selection of resistant bacteria. Solubility in water: 1 part in 2 parts H_2O . 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
13399.03	100 g

Ampicillin-Na-salt research grade

(6-[D-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{18}\text{N}_3\text{O}_4\text{S}\cdot\text{Na}$ ♦ M_r 371.4 ♦ CAS [69-52-3]



DANGER

H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin. Solubility in water: 1 part in 2 parts H_2O . Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

References:

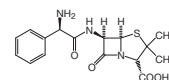
1. Nguyen-Distech, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size
13398.01	25 g
13398.02	100 g

Ampicillin trihydrate research grade

(6-[D(-)-α-aminophenylacetamido]penicillanic acid;
D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{19}\text{N}_3\text{O}_4\text{S}\cdot 3\text{H}_2\text{O}$ ♦ M_r 403.5 ♦ CAS [7177-48-2]



DANGER

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

Ph. Eur. Semi-synthetic derivative of penicillin. Inhibitor of cell wall synthesis in *E. coli*. Soluble 1 part in 150 parts H_2O as well as in diluted acids and bases. Insoluble in alcohol.

Assay (titr.) 96.0 - 100.5 %

References:

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

Cat.No.	Size
13397.01	10 g
13397.02	25 g
13397.03	100 g

Aneurin

see 36020 Thiamine-HCl, page 112, 325

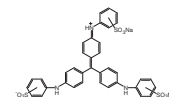
Aniline Blue pract.

(Acid Blue 93; China Blue)

C.I. 42780 ♦ CAS [28983-56-4]

EINECS 249-352-9 ♦ WGK 2L ♦ HS 32041200

Soluble in water.



λ_{max} ca. 590 nm
A 1 cm / 0.001 % in water/ λ_{max} 0.3 ± 0.1
Water (KF) max. 10.0 %

Cat.No.	Size
13645.01	25 g

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 SERVALT™ PRECOTES™

Cat.No.	Size
42984.03	50 ml

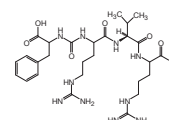
Antipain research grade

((S)-1-Carboxy-2-Phenylethyl]-Carbamoyl-L-Arg-L-V
al-Arginal)

$\text{C}_{27}\text{H}_{44}\text{N}_{10}\text{O}_6\cdot\text{HCl}\cdot 2\text{H}_2\text{O}$ ♦ M_r 677.2 ♦ CAS [37691-11-5]

EINECS 253-631-0 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C



Produced by certain *Streptomyces* species.

Strong inhibitor of papain, trypsin, cathepsin A and B. Inhibits to a smaller extent also plasmin (1). Inhibits transformation of NIH3T3 cells after transfection with an activated H-ras oncogene (2). Inhibition of RNA synthesis in embryos of *Xenopus laevis* (3).

References:

1. Umezawa, H. (1976) Methods Enzymol. **45**, 683-5
2. Cox, L.R. et al. (1991) Cancer Res. **51**, 4810-4
3. Miyata, S. et al. (1988) J. Exp. Zool. **246**, 150-5

Cat.No.	Size
13685.01	5 mg
13685.02	25 mg

For Amino Acids cell culture grade

see special chapter at p. 310

■ **Aphidicolin** research gradeC₂₀H₃₄O₄ ♦ M_r 338.5 ♦ CAS [38966-21-1]

WARNING

H302-H332-H341 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

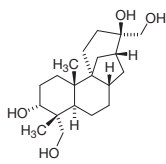
Antibiotic isolated from *Nigrospora oryzae* (1).

Tetracyclic diterpene with antiviral and antimitotic properties. Blocks the cell cycle at early S-phase. Specific inhibitor of α-type polymerase (eucaryotic and viral coded) (2).

Assay (TLC) min. 97.0 %

References:

1. Hubermann, J.A. (1981) Cell **23**, 647-8
2. Spadari, S. et al. (1982) Trends Biochem. Sci. **7**, 29-32



Cat.No.	Size
13696.02	1 mg

■ **Aprotinin from bovine lung** lyophil.

(Trypsin inhibitor from bovine lung; Trasylol®)

M_r ca. 6500 ♦ CAS [9087-70-1]

WARNING

H302 ♦ EINECS 232-994-9 ♦ WGK 1 ♦ HS 35040090
Storage temperature +2 °C to +8 °CPurified 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 microkats 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

■ **Anion Exchangers**

see DOWEX® Ion Exchange Resins, page 376

■ **ARALDITE® Accelerator DY 964**

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 114, 361

■ **ARALDITE® CY 212**

see 13825 Renlam® M-1, page 88, 361

■ **ARALDITE® Hardener HY 964** pract.

CAS [25377-73-5]



WARNING

H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171990

Contains dodecenyl succinic anhydride as the main component.

ARALDITE® = registered trademark of Huntsman Advanced Materials Europa

Cat.No.	Size
13826.01	100 g
13826.02	1 kg

■ **L-Arginine base** research grade

(Arg; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂ ♦ M_r 174.2 ♦ CAS [74-79-3]

WARNING

H319 ♦ EINECS 200-811-1 ♦ WGK 1L ♦ HS 29224985

Ph. Eur., USP.

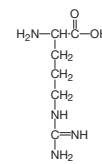
Assay (titr.)

98.5 - 101.0 %

Heavy metals (Pb)

max. 10 ppm

Cat.No.	Size
13909.02	100 g
13909.03	1 kg

■ **L-Arginine base** cell culture grade

(Arg; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂ ♦ CAS [74-79-3]

EINECS 200-811-1 ♦ HS 29224985

Assay (titr.)

min. 98.5 %

Endotoxin

≤ 6.0 E.U./g

Loss on drying

max. 0.5 %

Ammonium (NH₄)

max. 0.02 %

Chloride (Cl)

max. 0.02 %

Sulfate (SO₄)

0.02 %

Heavy metals (as Pb)

max. 10 ppm

Iron (Fe)

max. 10 ppm

Cat.No.	Size
47200.01	100 g
47200.02	1 kg

■ **L-Arginine-HCl** research grade

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

C₆H₁₄N₄O₂·HCl ♦ M_r 210.7 ♦ CAS [1119-34-2]

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

Ph.Eur., USP.

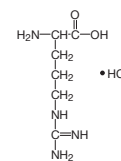
Assay (titr.)

98.5 - 101.0 %

Heavy metals (Pb)

max. 10 ppm

Cat.No.	Size
13940.02	100 g
13940.04	1 kg

■ **L-Arginine-HCl** cell culture grade

(Arg HCl; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂·HCl ♦ CAS [1119-34-2]

EINECS 214-275-1 ♦ HS 29224985

Assay (titr.)

min. 98.5 %

Endotoxin

≤ 6.0 E.U./g

Loss on drying

max. 0.2 %

Ammonium (NH₄)

max. 0.02 %

Chloride (Cl)

max. 17.0 %

Sulfate (SO₄)

0.02 %

Heavy metals (as Pb)

max. 10 ppm

Iron (Fe)

max. 10 ppm

Cat.No.	Size
47201.01	100 g
47201.02	1 kg

■ **ASB-14** research grade

(Amidosulfobetaine-14; 3-[N,N-Dimethyl(3-myrystoylamino)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

■ ASB-16 research grade

(Amidosulfobetaine-16; 3-[N,N-Dimethyl-N-(3-palmitamidopropyl)ammonio]propane-1-sulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-16 shows better protein solubilization properties than CHAPS and in some cases than ASB-14, resulting in improved detection of membrane proteins by 2D-electrophoresis.

CMC 8 mM (20 – 25 °C)
Assay (HPLC) min. 98.0 %

References:

1. Flatman, P. W., et al., (2005), J. Physiol. **563**, 421
2. Herbert, B., (1999) Electrophoresis **20**, 660
3. Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size
20758.01	1 g
20758.02	5 g

■ ASB-C7BzO research grade

(C7BzO; 3-(4-Heptyl)phenyl-3-hydroxypropyl-dimethylammoniopropanesulfonate; 3-(4-Heptyl)phenyl-3-hydroxypropyldimethylammoniosulfobetaine)
HS 34021900



Zwitterionic detergent. Useful for solubilizing and stabilizing integral membrane proteins by disrupting aggregates. Especially well-suited to protein extraction for proteomic applications.

Assay (HPLC) min. 96.0 %

References:

1. Luche, S., et al., (2003), Proteomics **3**, 249
2. Tastet, C., et al., (2003), Proteomics **3**, 111
3. Rabilloud, T., et al., (1999) Electrophoresis **20**, 3603

Cat.No.	Size
20759.01	1 g
20759.02	5 g

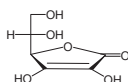
■ L-Ascorbic acid cryst. research grade

(Vitamin C)
 $C_6H_8O_6$ ♦ M_r 176.1 ♦ CAS [50-81-7]

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

Ph. Eur. 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
14030.03	500 g

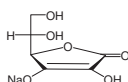
■ L-Ascorbic acid-Na-salt research grade

(Sodium-L-(+)-ascorbate)
 $C_6H_7O_6Na$ ♦ M_r 198.1 ♦ CAS [134-03-2]

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

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %
Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
14033.01	100 g
14033.02	500 g

■ L-Asparagine-monohydrate cell culture grade

(Asn; L-2-Aminosuccinamic acid)
 $C_4H_8N_2O_3 \cdot H_2O$ ♦ CAS [5794-13-8]

EINECS 200-735-9 ♦ HS 29224985

Assay (titr.) min. 99.0 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying 10.5 - 12.5 %
Ammonium (NH_4) max. 1000 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 200 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

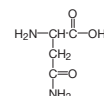
Cat.No.	Size
47202.01	100 g
47202.02	1 kg

■ L-Asparagine-monohydrate research grade

(Asn; L-2-Aminosuccinamic acid)
 $C_4H_8N_2O_3 \cdot H_2O$ ♦ M_r 150.1 ♦ CAS [5794-13-8]

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

Ph. Eur.
Assay (titr.) 99.0 - 101.0 %
Heavy metals (Pb) max. 10 ppm



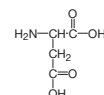
Cat.No.	Size
14110.02	100 g
14110.03	250 g
14110.04	1 kg

■ L-Aspartic acid research grade

(Asp; L-Aminosuccinic acid; L-2-Aminobutanedioic acid)
 $C_4H_7NO_4$ ♦ M_r 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
14180.03	1 kg

■ L-Aspartic acid cell culture grade

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

EINECS 200-291-6 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH_4) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
47203.01	100 g
47203.02	1 kg

■ ATP

see 10920 Adenosine-5'-triphosphate- Na_2 -salt, page 5, 342

■ Aureolic acid

see 29803 Mithramycin A, page 68, 286, 372

■ Aureomycin

see 14200 Chlortetracycline-HCl, page 26, 283

■ Auxins

see 26172 Indole-3-butyric acid, page 59, 310

■ Auxins

see 26181 Indole-3-acetic acid, page 59, 310

■ 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 24

■ **2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)·2NH₄-salt** cryst. analytical grade

(ABTS)

C₁₈H₁₆N₄O₆S₄·2NH₄ ♦ M_r 548.69 ♦ CAS [30931-67-0]



WARNING

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

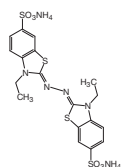
Chromogen for peroxidase in enzyme-linked immunoassay (ELISA) (1). For laccase and angiotensin I-converting enzyme assay (2).

TLC: one spot

References:

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

Cat.No.	Size
14364.01	1 g

■ **Azorubin pure**

(Acid Red 14; Chromotrope FB)

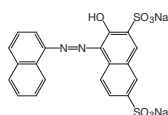
C.I.14720 ♦ C₂₀H₁₂N₂O₆S₂·Na₂ ♦ M_r 502.4 ♦ CAS [3567-69-9]

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

■ **BA**

see 14812 6-Benzylaminopurine, page 17, 309

■ **Bacitracin research grade**

(Bacidrin; Ginebatine)

M_r ca. 1422 ♦ CAS [1405-87-4]



WARNING

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

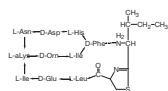
Storage temperature +2 °C to +8 °C

Ph. Eur. Min. 60 000 IU/g. Main component Bacitracin A. Bacteriocidal activity requires divalent cations like Zn²⁺ (1); Peptide antibiotic; inhibitor of peptidoglycan synthesis.

References:

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

Cat.No.	Size
14420.03	5 g
14420.02	25 g

■ **BAEE**

see 14600 Nα-Benzoyl-L-arginine ethyl ester-HCl, page 17, 343

■ **Basic Blue 17**

see 36693 Toluidine Blue O salt, page 113, 373

■ **Basic Blue 9**

see 29198 Methylene Blue, page 67, 241, 372

■ **Basic Green 4**

see 28335 Malachite green oxalate, page 65, 248, 372

■ **Basic Red 2**

see 34598 Safranin O, page 88, 373

■ **Basic Red 5**

see 30305 Neutral Red, page 72, 372

■ **Basic Red 9**

see 31627 Parafuchsin, page 76

■ **Basic Violet 14**

see 21916 Fuchsin basic, page 47, 371

■ **Basic Violet 3**

see 27335 Crystal Violet, page 32, 370

■ **Bathocuproine disulfonic acid-Na₂-salt** analytical grade

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

C₂₆H₁₈N₂O₆S₂·Na₂ ♦ M_r 564.6 ♦ CAS [52698-84-7]

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

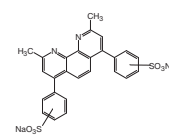
Copper detection in polyacrylamide gels.

Assay (titr.) min. 98.0 %

References:

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

Cat.No.	Size
14470.02	1 g
14470.03	5 g

■ **Bathophenanthroline disulfonic acid-Na₂-salt** analytical grade

(4,7-Diphenyl-1,10-phenanthroline disulfonic acid-Na₂-salt·H₂O)

C₂₄H₁₄N₂O₆S₂·Na₂·x H₂O ♦ M_r 536.5 (anhydrous) ♦ CAS [53744-42-6]

EINECS 258-740-7 ♦ WGK 1 ♦ HS 29339980

Determination of iron without extraction (1). Stain for proteins in polyacrylamide gels (2).

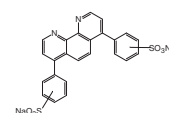
Assay (titr.) min. 98.0 %

Water (KF) max. 10.0 %

References:

1. Graham, G. et al. (1978) Anal. Biochem. **88**, 434-41
2. Landers, J.W. & Zak, B. (1958) Am. J. Clin. Pathol. **29**, 590-2

Cat.No.	Size
14483.03	1 g

■ **Bayol F research grade**

(Paraffin oil, low viscosity; Bayol 35)

HS 27101985

Cat.No.	Size
14500.01	100 ml
14500.02	1 L

■ **BCA Protein Assay Macro Kit**

DANGER

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic 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:

1. 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

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic 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:

1. 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 20, 221, 294, 343, 369

■ **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 17, 360

■ **BEEM capsules 5.2 mm for EM-embedding**

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size
43510.01	100 pieces

■ **BEEM capsules 8.0 mm for EM-embedding**

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size
43511.01	100 pieces

■ **Bentonite-SF research grade**

(Aluminium silicate; Montmorillonite)
CAS [1302-78-9]

EINECS 215-108-5 ♦ HS 25081000

NF. 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

■ **Benzamidine-HCl research grade**

$C_7H_8N_2 \cdot HCl$ ♦ M_r 156.62 (anhydr.) ♦ CAS [1670-14-0]

 **WARNING**
H315-H319-H335 ♦ EINECS 216-795-4 ♦ WGK 1 ♦
HS 29252900

Storage temperature +2 °C to +8 °C

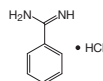
Potent inhibitor of thrombin and trypsin.

Assay (titr.)	min. 99.0 %
Water content	max. 15.0 %

References:

1. Henkel, H.J. et al. (1983) Pharmazie **38**, 342-6

Cat.No.	Size
14525.01	5 g
14525.02	25 g

■ **N α -Benzoyl-L-arginine ethyl ester-HCl analytical grade**

(BAEE)

$C_{15}H_{22}N_4O_3 \cdot HCl$ ♦ M_r 342.8 ♦ CAS [2645-08-1]

EINECS 220-157-0 ♦ WGK 1 ♦ HS 29224985

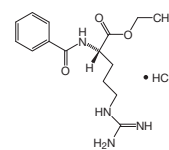
Storage temperature +2 °C to +8 °C

Substrate for determination of trypsin (1). Papain substrate (2).

MP	128 - 133 °C
[α] _D ²⁰ °C/D (c=2 in water)	-18 ± 2 °

References:

1. Smith, E.L. & Parker, M.J. (1958) J. Biol. Chem. **233**, 1387-91
2. Schwert, G.W. & Takenaka, Y. (1955) Biochim. Biophys. Acta **16**, 570-5



Cat.No.	Size
14600.02	5 g

■ **N⁶-Benzyladenine**

see 14812 6-Benzylaminopurine, page 17, 309

■ **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

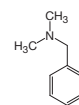
♦ EG-Index 612-074-00-7 ♦ GGVSE/

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

■ **6-Benzylaminopurine research grade**

(BA; N⁶-Benzyladenine)

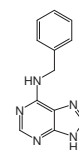
$C_{12}H_{11}N_5$ ♦ M_r 225.3 ♦ CAS [1214-39-7]



WARNING

H302-H315-H319-H332-H335 ♦ EINECS 214-927-5 ♦
WGK 1 ♦ HS 29335995

Assay (HPLC)	min. 99.0 %
MP	230 - 233 °C
λ max. (0.001 % in 0.1M HCl)	274 - 278 nm



Cat.No.	Size
14812.01	1 g
14812.02	5 g

■ **Benzyltrimethyl-n-hexadecyl ammonium chloride analytical grade**

(16-BAC; Benzylhexadecyldimethylammonium chloride; Cetalkonium chloride; Cetyldimethylbenzylammonium chloride)

CAS [122-18-9]



DANGER

H302-H312-H314-H400 ♦ GGVSE/

ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦
HS 34021900

Cationic surfactant used in acidic PAGE, especially 2D electrophoresis (1), improving resolution of proteins with similar molecular weight. It has been used to separate yeast mitochondrial membrane proteins (2).

Assay	min. 99.0 %
-------	-------------

References:

1. Nothwang, H. G. & Schindler (2009) J. Methods Mol. Biol. **528**, 269-77
2. Braun, R. J., et al. (2009) Methods Mol. Biol. **528**, 83-107

Cat.No.	Size
14836.01	25 g
14836.02	100 g

■ **Benzylhexadecyldimethylammonium chloride**

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

■ **Benzylpenicillin potassium**

see 31749 Penicillin G-K-salt, page 77, 281

■ **Benzylsulfonyl fluorid**

see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

■ **Bestatin research grade**

(((2S, 3R)-3-Amino-2-hydroxy-4-phenylbutanoyl]-L-leucine)

$C_{16}H_{24}N_2O_4 \cdot HCl$ $\diamond$ M_r 344.8 $\diamond$ CAS [65391-42-6]

WGK 1 $\diamond$ HS 29224985

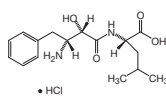
Storage temperature -15 °C to -25 °C

Aminopeptidase B and leucine aminopeptidase inhibitor (1, 2) with multi-pharmacological functions (3). Inhibitor of enkephalin degradation in cell preparations from brain (4). Anticarcinogenic (5, 6). Immunomodulating agent (7, 8). Inhibitor of leukotriene A4 hydrolase (9).

Assay (HPLC) min. 90.0 %

References:

- Iwahashi, M. et al. (1994) Anticancer Res. **14**, 1563-8
- Umezawa, H. (1984) Rev. Infect. Dis. **6**, 412-20
- Ota, K. (1991) Biomed. Pharmacother. **45**, 55-60
- Orning, L. et al. (1991) J. Biol. Chem. **266**, 1375-8
- Umezawa, H. et al. (1976) J. Antibiot. **29**, 97-9
- Burley, S.K. et al. (1991) Proc. Natl. Acad. Sci. USA **88**, 6912-20
- Mathe, G. (1991) Biomed. Pharmacother. **45**, 49-54
- Cohen, M.L. et al. (1983) J. Pharmacol. Exp. Ther. **224**, 379-85
- Ino, K. et al. (1991) Biotherapy **3**, 351-7



Cat.No.	Size
14980.02	5 mg

■ **Betaine cryst. research grade**

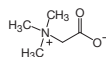
(N-Trimethylglycine hydroxide)

$C_5H_{11}NO_2 \cdot H_2O$ $\diamond$ M_r 135.2 $\diamond$ CAS [17146-86-0]

EINECS 209-684-7 $\diamond$ WGK 1L $\diamond$ HS 29239000

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
14992.02	250 g

■ **BICIN**

see 15105 N,N-Bis(2-hydroxyethyl)glycine, page 18, 355

■ **(+)-Biotin cryst. research grade**

(d-Biotin; Vitamin H)

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

EINECS 200-399-3 $\diamond$ WGK 1L $\diamond$ HS 29362900

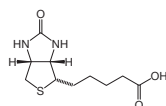
USP, Ph. Eur. Tested for use in tissue culture.

Assay (titr.) 98.5 - 100.5 %

Heavy metals max. 10 ppm

References:

- Knappe, J. (1970) Annu. Rev. Biochem. **39**, 757-76
- Bayer, E. & Wilchek, M. (1974) Methods Enzymol. **34**, 265-7



Cat.No.	Size
15060.02	500 mg
15060.03	2,5 g

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

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

$C_8H_{19}NO_5$ $\diamond$ M_r 209.24 $\diamond$ CAS [6976-37-0]

EINECS 230-237-7 $\diamond$ WGK 1 $\diamond$ HS 29221985

Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

280 nm max. 0.1

Iron (Fe) max. 5 ppm

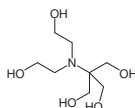
Lead (Pb) max. 3 ppm

pH 10 % in water 9.4 - 10.4

pKa 20 6.46

References:

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



Cat.No.	Size
15107.03	100 g
15107.04	250 g

■ **N,N-Bis(2-hydroxyethyl)glycine analytical grade**

(BICIN)

$C_6H_{13}NO_4$ $\diamond$ M_r 163.2 $\diamond$ CAS [150-25-4]

EINECS 205-755-1 $\diamond$ WGK 1 $\diamond$ HS 29224985

Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.08

280 nm max. 0.06

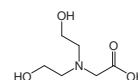
Heavy metals (Pb) max. 0.0005 %

pH 10 % in water 4.6 - 5.1

pKa 20 8.3

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68



Cat.No.	Size
15105.02	100 g
15105.03	250 g

■ **Bis(acrylamido)methane**

see 29195 N,N'-Methylene bisacrylamide 2X, page 67, 234

■ **Bisbenzimidazole H 33258 research grade**

(Hoechst 33258; 2-[2-(4-Hydroxyphenyl)-6-benzimidazolyl]-6-(1-methyl-4-piperazyl)-benzimidazole trihydrochloride)

$C_{25}H_{24}N_6O \cdot 3HCl$ $\diamond$ M_r 533.88 $\diamond$

CAS [23491-45-4]



WARNING

H315-H319 $\diamond$ EINECS 245-690-6 $\diamond$ WGK 1 $\diamond$ HS 29335995

Storage temperature +2 °C to +8 °C

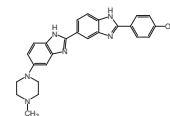
For DNA fluorescence labeling of vital and fixed nuclei (1, 2). Specific chromosome banding patterns (3, 4, 5).

Assay (HPLC) min. 98.0 %

Water max. 20.0 %

References:

- Lämmler, G. & Schütze, H.R. (1969) Naturwissenschaften **58**, 286-99
- Hilwig, J. (1969) Z. Zellforsch. **104**, 127-37
- Hilwig, J. & Gropp, A. (1972) Exp. Cell Res. **75**, 122-6
- Binder, M. & Kim, M.A. (1975) Exp. Path. **10**, 220-4
- Stokke, T. & Steen, H.B. (1985) J. Histochem. Cytochem. **33**, 333-8



Cat.No.	Size
15090.01	100 mg

■ **BISTRIS**

see 15107 2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol, page 18, 244, 319, 355

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

DANGER

H340-H350-H361F $\diamond$ 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.

To perform IEF, Blank PRECOTES™ are equilibrated in the ampholyte mixture of choice for 30 minutes prior to electrophoresis. Resolution is at least as good, sometimes found even superior, compared to the results obtained with gels of »cast-in« ampholytes.

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

■ **Blank PRECOTES™ PAG layer 300 μm, size 245 x 125 mm**

DANGER

H340-H350-H361F $\diamond$ HS 38220000

Storage temperature +2 °C to +8 °C

Cat.No.	Size
42710.01	5 gels

Blank PreNets™ PAG layer 300 µm, size 125 x 125 mm

HS 38220000

Storage temperature +2 °C to +8 °C

PreNets™ gels are prepared with Net-Fix™ cast into the polyacrylamide matrix adding mechanical stability to the thin gel layer. Net-Fix™ is an inert polyester net activated to bind polyacrylamide. After electrophoresis, the gel is easily lifted from its film support (non-binding) and transferred to the membrane of choice, no tearing or damage will occur when handling the thin layer due to the stabilizing effect of the built-in Net-Fix™.

Both methods, semi-dry transfer and tank transfer, are applicable. Transfer using a semi-dry blotter is usually completed within 30 minutes. Handling of PreNets™ is identical in all steps to operating PRECOTES™, including staining and drying.

Shelf-life of Blank PreNets™ is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PreNets™ is a registered trademark of SERVA.

Cat.No.	Size
42758.01	5 gels

Bleomycin-sulfate lyophil. pure

(Blenoxane)

CAS [9041-93-4]



DANGER

H302-H332-H350-H360D

† Carc. 1B, Repr. 1A †

EINECS 232-925-2 † WGK 2 † HS 29419000

Storage temperature +2 °C to +8 °C

Chemistry and action of bleomycin: Group of glycopeptide antibiotics from *Streptomyces verticillus* with antineoplastic properties by inhibition of DNA synthesis: reacts with DNA and causes breaks in the nucleotide chain.

References:

1. Umezawa, H. (1980) Med. Chem. **16**, 147-66
2. Pavon, V. et al. (1995) Current Microbiol. **30**, 117-20
3. Fattman, C.L. et al. (2001) Free Radical Biol. Med. **31**, 1198-1207
4. Izbic, G. et al. (2002) Am. J. Physiol. **283**, L1110-6
5. Yamamoto, T. a. Nishioka, K. (2005) Experim. Dermatol. **14**, 81-95
6. Pietruska, J.R. a. Kane, A.B. (2007) Cancer Res. **67**, 3637-45
7. Moodley, Y. et al. (2009) Am. J. Pathol. **175**, 303-13

Cat.No.	Size
15154.01	1 mg
15154.02	5 mg

Blue tetrazolium chloride

see 35950 Tetrazolium Blue-chloride, page 112, 349

Boric acid electrophoresis grade

H₃BO₃ † M, 61.83 † CAS [10043-35-3]



DANGER

H360Df † Repr. 1B † MAK/TRK 0.5 mg/m³ † 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
15166.01	250 g
15166.02	1 kg

Boric acid analytical grade

H₃BO₃ † M, 61.83 † CAS [10043-35-3]



DANGER

H360Df † Repr. 1B † MAK/TRK 0.5 mg/m³ † 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

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

Brefeldin A research grade

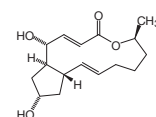
C₁₆H₂₄O₄ † M_r 280.4 † CAS [20350-15-6]



WARNING

H302-H312-H332 † WGK 1 † HS 29419000

Storage temperature -15 °C to -25 °C



Macrolide antibiotic from *Penicillium brefeldianum*.

Specifically inhibits translocation of proteins from the endoplasmic reticulum to the Golgi apparatus.

Assay (TLC) min. 98.0 %

References:

1. Capparelli, A.W. et al. (1993) Am. J. Physiol. **264**, C40-7
2. Cluett, E.B. et al. (1993) J. Cell Biol. **120**, 15-24
3. Driouch, A. et al. (1993) Plant Physiol. **101**, 1363-73
4. Uhlin-Hansen, L. & Yanagishita, M. (1993) Biol. Chem. **268**, 17370-6
5. Calabro, A. & Hascall, V. (1994) J. Biol. Chem. **269**, 22771-8
6. Turi, T.G. et al. (1994) J. Biol. Chem. **269**, 24229-36

Cat.No.	Size
15100.01	1 mg
15100.02	5 mg

Brij 35™ pract.

(Polyoxyethylene monolauryl ether)

M_r 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
15230.02	1 kg

SingleQuant Assay Kit for
protein quantification:
see special chapter at p. 134

■ Bromelain from pineapple stem ca. 0.5 DMC-U/mg powder

(Stem bromelain)

EC 3.4.22.32 ♦ M_r 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). 1200 GDU units/g, 2400 FIP units/g (4).

References:

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

C₉H₁₁BrN₂O₅ ♦ M_r 307.1 ♦ CAS [59-14-3]

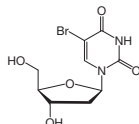
WARNING

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

Storage temperature +2 °C to +8 °C

Assay (HPLC)

min. 98.0 %



Cat.No.	Size
15240.01	250 mg
15240.02	1 g

■ 5-Bromo-4-chloro-3-indolyl-phosphate-Na₂-salt analytical grade

(5-Bromo-4-chloro-3-indolyl-phosphate-Na₂-salt;
X-phos disodium salt)C₈H₄BrClNO₄P-Na₂ ♦ M_r 370.43 ♦ CAS [102185-33-1]

WGK 1 ♦ HS 29339980

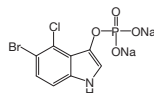
Storage temperature -15 °C to -25 °C

Crystalline, easily soluble in water, more stable than the monopotassium salt.

Store dry in the dark. Substrate for phosphatase.

Assay (HPLC)

min. 99.0 %



Cat.No.	Size
15259.02	500 mg

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

(BCIP)

C₈H₆NO₄BrClP-C₇H₉N or C₁₅H₁₅BrClN₂O₄P ♦ M_r 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 MgCl₂, 100 mM Tris; pH 9.5)

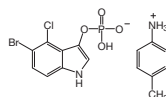
Assay (HPLC)

min. 99.0 %

References:

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

Cat.No.	Size
15247.02	100 mg
15247.03	500 mg



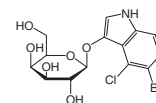
■ 5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal) research grade

(X-Gal)

C₁₄H₁₅BrClNO₆ ♦ M_r 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^c-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:

- Maloy, S.R. (1990) Experimental Techniques in Bacterial Genetics, Jones and Bartlett (eds.), Boston, MA
- Miller, J.H. (1992) A Short Course in Bacterial Genetic, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
- 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)
- Horowitz, J. et al. (1964) J. Med. Chem. **7**, 574
- Brand, A. and Perrimon, N. (1993), Development **118**, 401
- Ley, A. et al. (1993) Can. J. Microbio. **39**, 821
- Feldsine, P.T. et al. (1993) J. AOAC Int. **76**, 5
- Loida, Z. et al. (1973) Histochemie **34**, 31-9
- Loida, Z. et al. (1979) in «Enzyme Histochemistry, A Laboratory Manual», Springer-Verlag Berlin, Heidelberg, New York
- Davies et al. (1980) Advanced Bacterial Genetics, Cold Spring Harbor, N.Y.

Cat.No.	Size
15243.06	250 mg
15243.03	1 g
15243.07	5 g

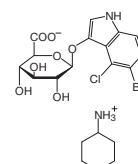
■ 5-Bromo-4-chloro-3-indolyl-β-D-glucuronide-cyclohexylammonium salt

(X-Gluc; X-glucA CHX)

C₁₄H₁₃BrClNO₇·C₆H₁₃N or C₂₀H₂₆BrClN₂O₇ ♦ M_r 521.8 ♦
CAS [114162-64-0]

WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C



Chromogenic substrate for β-glucuronidase. The chromogenic substrate X-gluc is used in a variety of applications for detection of β-glucuronidase enzyme. This compound has been used since late 1960 in plant tissue sections. Because of the localized colour which X-gluc produces upon reduction, it is extremely useful in identifying gene presence within most cell types (2). Recent applications of this product include its use in the rapid detection of GUS (*E. coli* β-glucuronidase) gene fusion marker in plants (6, 7). X-Gluc has also been reported applications in detection of *E. coli* in food samples such as meat, dairy products, and shellfish (4, 9).

This chemical has clinical applications in the assessment of urinary infections by detection of the presence of *E. coli* (8). X-gluc has gained international acceptance as highly accurate test for the presence of *E. coli* in potable water sample thereby greatly reducing false positive and negative found with traditional methods.

Assay (TLC)

min. 98.0 %

References:

- Sartory, D.P. & Howard, L. (1992) Let. Appl. Microbiol. **15**, pp. 2373-376
- Ellis, D.D. et al. (1993) Bio/Technology **11**, No. 1, pp 84-89
- Brenner, K.P. et al. Abstracts for the Annual Meeting of the American Society for Microbiology, May 16-20, 1993
- Restaino, L. et al. (1990) J. Food Protect. **53**, No. 6, pp. 508-510
- Frampton, E.W. et al. (1988) J. Food Protect. **51**, No. 5, pp. 402-404
- Bommineni, V.R. et al. (1993) Plant Cell Reports **13**, No. 1, pp. 17-23
- Martin, G.C. et al. (1990) J. Amer. Soc. Hortic. Sci. **115**, No. 4, pp. 686-691
- Delisle, G.J. and Ley, A. (1989) J. Clin. Microbiol. **27**, No. 4, pp. 778-779
- Watkins, W.D. et al. (1988) Appl. Environ. Microbiol. **54**, pp. 1874-1875

Cat.No.	Size
15248.03	100 mg

■ Bromophenol Blue-Na-salt

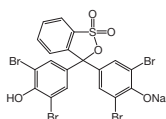
(3'-3''-5'-5''-Tetrabromophenol sulfonphthalein)
 $C_{19}H_9Br_4O_5S \cdot Na$ $\diamond$ M_r 692.0 $\diamond$ CAS [34725-61-6]

EINECS 252-170-2 $\diamond$ WGK 2L $\diamond$ HS 32049000

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

λ max (0.001 % in water)

594 $\pm$ 4 nm



Cat.No.	Size
15375.01	5 g
15375.02	25 g

■ BSA

see 11920 Albumin bovine, page 8, 276, 293

■ BSA

see 11947 Albumin bovine Low Hormone, page 9, 277, 313

■ BT

see 35950 Tetrazolium Blue-chloride, page 112, 349

■ 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

■ 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

■ n-Butanol analytical grade

(1-Butanol)



$C_4H_{10}O$ $\diamond$ M_r 74.12 $\diamond$ CAS [71-36-3]

DANGER

H226-H302-H315-H318-H335-H336 $\diamond$ EG-

Index 603-004-00-6 $\diamond$ GGVSE/ADR 3 III UN1120 $\diamond$ IATA 3 III UN1120 $\diamond$ EINECS 200-751-6 $\diamond$ WGK 1 L

Assay (GC)	min. 99.0 %
Density (20 °C)	0.810
Water	max. 500 ppm
Acidity	max. 0.001 %
Residue on evaporation	max. 50 ppm

Cat.No.	Size
45628.01	1 L
45628.02	2,5 L

■ n-Butanol molecular biology grade

(1-Butanol)

$C_4H_{10}O$ $\diamond$ M_r 74.12 $\diamond$ CAS [71-36-3]



DANGER

H226-H302-H315-H318-H335-H336 $\diamond$ MAK/TRK 310 mg/m³; 100 ml/m³ $\diamond$ EG-Index 603-004-00-6

$\diamond$ GGVSE/ADR 3 III UN1120 $\diamond$ IATA 3 III UN1120 $\diamond$ EINECS 200-751-6 $\diamond$ WGK 1L $\diamond$ 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

■ C7BzO

see 20759 ASB-C7BzO, page 15, 142, 244

■ Cacodylic acid-Na-salt-3H₂O research grade

(Sodium cacodylate)

$C_2H_5AsO_2 \cdot Na \cdot 3H_2O$ $\diamond$ M_r 214.0 $\diamond$ CAS [6131-99-3]



DANGER

H301-H331-H400-H410 $\diamond$ EG-Index 033-002-00-5

$\diamond$ GGVSE/ADR 6.1 II UN1688 $\diamond$ IATA 6.1 II UN1688 $\diamond$

EINECS 204-708-2 $\diamond$ WGK 3 $\diamond$ HS 29319090

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

Assay (titr.) min. 98.0 %

Cat.No.	Size
15540.01	25 g
15540.02	100 g
15540.03	500 g

■ Calcein free acid

see 77098 Calcium Ionophore A 23187, page 22, 281

■ Calcium chloride pure, anhydrous

$CaCl_2$ $\diamond$ M_r 110.99 $\diamond$ CAS [10043-52-4]



WARNING

H319 $\diamond$ EG-Index 017-013-00-2 $\diamond$ EINECS 233-140-8 $\diamond$ WGK 1L $\diamond$ HS 28272000

Assay (titr.) min. 98.0 %

Cat.No.	Size
15585.02	500 g

■ Calcium chloride-2H₂O analytical grade

$CaCl_2 \cdot 2H_2O$ $\diamond$ M_r 147.0 $\diamond$ CAS [10035-04-8]



WARNING

H319 $\diamond$ EG-Index 017-013-00-2 $\diamond$ EINECS 233-140-8 $\diamond$ WGK 1L $\diamond$ HS 28272000

USP, Ph.Eur. USP, Ph.Eur.

Assay (titr.)	99.0 - 103.0 %
Sulfate	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %
pH 5 % in water	4.5 - 9.2

Cat.No.	Size
15587.02	1 kg

BlueLine Equipment
for Electrophoresis:
 see special chapter at p. 253

■ Calcium chloride·2H₂O molecular biology grade

CaCl₂·2H₂O ♦ M_r 147.0 ♦ CAS [10035-04-8]



WARNING

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

DNase/RNase not detected. Useful in preparing competent bacteria.

Assay (titr.)	min. 99.0 %
Sulfate	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %
pH 5 % in water	4.5 - 9.2

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.82-1.84)

Cat.No.	Size
39551.01	250 g

■ Calcium hypochlorite research grade

Ca(OCl)₂ ♦ M_r 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
d20 °C	2.350
Active chlorine	min. 65.0 %

Cat.No.	Size
15591.02	500 g

■ Calcium Ionophore A 23187 research grade

(A 23187; Calcimycin free acid)

C₂₉H₃₇N₃O₈ ♦ M_r 523.6 ♦ CAS [52665-69-7]



WARNING

H302-H312-H332 ♦ EINECS 258-084-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

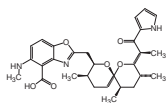
Free acid; crystalline; Increases the permeability of biological membranes with high selectivity for divalent cations (Ca, Mg) in contrast to other cations (1). Protect from light.

Purity (HPLC) min. 97.0 %

References:

1. Ackerman, K.E.O. et al. (1983) Biochim. Biophys. Res. Commun. **113**, 171-7
2. French, J.K. et al. (1987) FEBS Lett. **212**, 242-6
3. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
4. Martin, G. et al. (2005) Human Reproduction **20**, 3459-68
5. Shi, Y. et al. (2007) Br. J. Pharmacol. **150**, 624-32
6. Verma, A. et al. (2011) Cell Calcium **50**, 510-22

Cat.No.	Size
77098.01	5 mg
77098.02	10 mg



■ Canada balsam for microscopy

CAS [8007-47-4]

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

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

Cat.No.	Size
26896.02	100 ml

■ Caprylyl sulfobetaine

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

■ Carbenicillin-Na₂-salt research grade

(α-Carboxybenzylpenicillin-disodium salt)

C₁₇H₁₆N₂O₆S·Na₂ ♦ M_r 422.37 ♦ CAS [4800-94-6]



DANGER

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

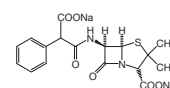
Storage temperature +2 °C to +8 °C

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:

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

Cat.No.	Size
15875.01	250 mg
15875.02	1 g
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_r 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:

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

Cat.No.	Size
15882.01	25 mg
15882.02	100 mg
15882.03	500 mg

■ Carbopol® 934 pract.

WGK 1L ♦ HS 39069090

A carboxyvinyl-polymer of Goodrich Chemical Co. 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-Na₂-salt, page 22, 280

■ 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
16180.01	5 g
16180.02	25 g

■ Carrier Ampholytes

see SERVLYT™ Carrier Ampholytes, page 102, 196

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

lyophil. salt-free

EC 1.11.1.6 ♦ M_r 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_r 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 SERVLYT™ PRECOTES™.

Cat.No.	Size
42986.03	50 ml

■ Cedar wood oil research grade, optically clear

CAS [85085-41-2]

WGK 2 ♦ HS 33019090

Immersion oil for microscopy.

Density (20 °C) 0.98 - 1.00

Refractive index (20 °C) 1.510 - 1.520

Cat.No.	Size
38565.01	50 ml
38565.02	500 ml

■ Cefotaxime-Na-salt research grade

(Claforan)

C₁₆H₁₆N₄O₇S₂Na ♦ M_r 477.5 ♦ CAS [64485-93-4]

EINECS 264-915-9 ♦ WGK 1 ♦ HS 29419000

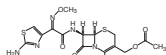
Storage temperature +2 °C to +8 °C

Cephalosporin derivative; β-lactamase resistant antibiotic. Effective against gram-positive and gram-negative bacteria (1). Optimal pH for stability in aqueous solution, 4.3 - 6.2 (2).

References:

1. Young, P.M. et al. (1984) Plant Sci. Lett. **34**, 203-9
2. Das Gupta, V. (1984) J. Pharm. Sci. **73**, 565-7

Cat.No.	Size
16382.02	1 g



■ Celite™ 545 analytical grade

CAS [68855-54-9]



WARNING

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

Acid washed, fine particles removed.

Celite™ = registered trademark of Manville Corp.

Cat.No.	Size
16392.02	100 g

■ 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

■ D-Cellobiose analytical grade

(4-O-β-D-Glucopyranosyl-D-glucose)

C₁₂H₂₂O₁₁ ♦ M_r 342.3 ♦ CAS [528-50-7]

EINECS 208-436-5 ♦ WGK 1 ♦ HS 29400000

For bacteriology. Substrate for β-glucosidase.

Purity (HPLC)

min. 98.0 %

MP

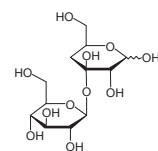
240 °C (dec.)

[α]_D²⁰ °C/D (c=1 in water)

+33.0 ° to +35.0 °

References:

1. Michalski, Ch. & Domnas, A. (1974) Carbohydr. Res. **33**, 153-70



Cat.No.	Size
16400.01	10 g
16400.02	50 g

■ Cellulase »Onozuka« from *Trichoderma viride* 1 U/mg

Special quality for ELOS analysis by VDLUFA

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. Recommended quality for ELOS analysis by VDLUFA.

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 (2).

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. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size
16418.01	2,5 g
16418.02	10 g
16418.03	50 g

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. 28032) (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. 28032) (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

Cellulase from *Trichoderma viride* ca. 0.2 U/mg

CAS [9012-54-8]



DANGER

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

Storage temperature +2 °C to +8 °C

An enzyme complex derived from the fermentation of a selected strain. Hydrolyzes or degrades cellulosic materials from a wide variety of sources depending on enzyme dosage, reaction conditions and the type of material being treated. Besides a high cellulase activity (EC 3.2.1.4) the preparation exhibits hemicellulase and amylase activity. Another feature is its macerage activity which is capable of cell wall decomposition.

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 (1).

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

References:

1. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-263

Cat.No.	Size
16427.01	50 g
16427.02	250 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
14205.02	1 kg

CentriPure/CentriSpin Gelfiltration Columns

see Chapter Sample Preparation, page 152

Cellulose microcrystalline ca. 0.05 mm research grade

(Avicel PH 101®; previously Avicel TG 101; Avicel PH)

CAS [9004-34-6]

EINECS 232-674-9 ♦ HS 39129090

Ph. Eur., USP/NF

Avicel = registered trademark of FMC, Brussels.

Cat.No.	Size
14204.02	1 kg
14204.03	20 kg
14204.04	5 kg

Cerulenin from *Cephalosporium caerulens* research grade

C₁₂H₁₇NO₃ ♦ M_r 223.27 ♦ CAS [17397-89-6]

WARNING

H302-H312-H332 ♦ EINECS 241-424-8 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Antifungal antibiotic that inhibits sterol and fatty acid biosynthesis. Inhibits HMG-CoA synthetase activity. Induces apoptosis in tumor cell lines. Packaged under argon.

Protect from light!

Assay (TLC) min. 98.0 %

References:

1. Omura, S. (1976) Bacteriol. Rev. **40**, 681-697
2. Buttke, T.M. a. Ingram, L.O. (1978) Biochemistry **17**, 5282-6
3. Omura, S. (1981) Meth. Enzymol. **72**, 520-32
4. Pizer, E.S. et al. (1996) Cancer Res. **56**, 2745-7
5. Fuuya, Y et al. (1997) Anticancer Res. **17**, 4589-93

Cat.No.	Size
16487.01	1 mg

Cesium chloride analytical grade

CsCl $\diamond$ M_r 168.4 $\diamond$ CAS [7647-17-8]

EINECS 231-600-2 $\diamond$ WGK 1 $\diamond$ HS 28273985

For density gradient centrifugation. Cesium chloride is probably the most widely used density gradient medium. It gives shallow gradients and is good for fractionating molecules which are dispersed in density. It has been used in the isolation of nucleic acids (including double-stranded RNA and closed circular DNA) as well as ribosomal subunits, proteins, glycoproteins and viruses.

SERVA analytical grade CsCl offers outstanding quality:

Results are not adversely affected by the presence of contaminants.

Extremely low absorbance: largely devoid of interfering components which can absorb in the UV range, A₂₆₀ of a 50 % solution in water max. 0.02 (1 cm light path).

Assay	min. 99.9 %
A 1 cm/50 % in water/260 nm	max. 0.02
Heavy metals (Pb)	max. 1 ppm

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (7.19-7.22, 1.42-1.45, 2.79)
2. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size
15554.02	50 g
15554.03	250 g
15554.04	1 kg

Cetalkonium chloride

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

Cetrimide C16

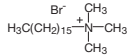
see 16530 Cetyltrimethylammonium-bromide, page 25, 142, 245, 295

Cetyltrimethylammonium chloride

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

Cetyltrimethylammonium-bromide cryst. pure

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



$C_{19}H_{42}N^+Br^-$ $\diamond$ M_r 364.46 $\diamond$ CAS [57-09-0]
 H302-H315-H319-H400-H410 $\diamond$ GGVSE/ADR 9 III UN3077
 $\diamond$ IATA 9 III UN3077 $\diamond$ EINECS 200-311-3 $\diamond$ WGK 3L $\diamond$ 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:

1. Eley, M. et al. (1979) Anal. Biochem. **92**, 411-9
2. Hansen, S.H. et al. (1981) J. Chromatogr. **210**, 453-60
3. Joshi, M.S. et al. (1989) Biotechnol. Lett. **11**, 349-52
4. Milligan, B.G. (1989) Plant Mol. Biol. Rep. **7**, 144-9
5. Abdel-Latif, M.S. & Guibault, G.G. (1989) Anal. Chim. Acta **221**, 11-7
6. 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 26, 143, 245

Chemiluminescence Substrate Kits

see 42584 SERVALight Polarisc CL HRP WB Substrate Kit, page 101, 222, 348

China Blue

see 13645 Aniline Blue, page 13, 369

Chloramphenicol research grade

(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)

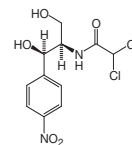
$C_{11}H_{12}Cl_2N_2O_5$ $\diamond$ M_r 323.1 $\diamond$ CAS [56-75-7]



DANGER

H317-H334-H340-H350-H361d $\diamond$

EINECS 200-287-4 $\diamond$ WGK 3 $\diamond$ HS 29414000



Ph. Eur. 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).

Assay (UV)	98.0 - 102.0 %
------------	----------------

References:

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

Cat.No.	Size
16785.03	25 g
16785.02	100 g

L-1-Chloro-3-tosylamido-4-phenyl-2-butanone

research grade

(TPCK; Nα-p-Tosyl-L-phenylalanine chloromethylketone)

$C_{17}H_{18}ClNO_3S$ $\diamond$ M_r 351.85 $\diamond$ CAS [402-71-1]

EINECS 206-954-6 $\diamond$ WGK 1 $\diamond$ HS 29350090

Storage temperature -15 °C to -25 °C

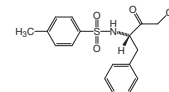
Inactivates chymotrypsin (but not trypsin) by specific reaction with histidine.

Assay (TLC)	min. 98.0 %
-------------	-------------

References:

1. Ong, E.B. et al. (1965) J. Biol. Chem. **240**, 694-8

Cat.No.	Size
17016.02	250 mg



L-1-Chloro-3-tosylamido-7-amino-2-heptanone-HCl

research grade

(TLCK; Nα-p-Tosyl-L-lysine chloromethyl ketone)

$C_{14}H_{21}ClN_2O_3S$ $\diamond$ M_r 369.31 $\diamond$ CAS [4272-74-6]

EINECS 224-266-4 $\diamond$ WGK 1 $\diamond$ HS 29350090

Storage temperature -15 °C to -25 °C

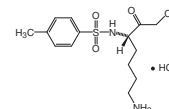
Inactivates trypsin (but not chymotrypsin) by specific reaction with histidine.

Purity (TLC)	one spot
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References:

1. Shaw, E. et al. (1965) Biochemistry **4**, 2219-24

Cat.No.	Size
17013.02	100 mg
17013.04	250 mg



Chloroform molecular biology grade

CHCl₃ $\diamond$ M_r 119.4 $\diamond$ CAS [67-66-3]



WARNING

H302-H315-H351-H373 $\diamond$ Carc. 2 $\diamond$ MAK/TRK 2.5 mg/m³; 0.5 ml/m³ $\diamond$ EG-Index 602-006-00-4 $\diamond$ GGVSE/

ADR 6.1 III UN1888 $\diamond$ IATA 6.1 III UN1888 $\diamond$ EINECS 200-663-8 $\diamond$ WGK 3L $\diamond$ 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	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

Cat.No.	Size
39553.01	250 ml
39553.02	2.5 L

■ **Chloroform** analytical gradeCHCl₃ ♦ M_r 119.4 ♦ CAS [67-66-3]**DANGER**H302-H315-H335-H373 ♦ EG-Index 602-006-00-4 ♦
GGVSE/ADR 6.1 III UN1888 ♦ IATA 6.1 III UN1888 ♦

EINECS 200-663-8 ♦ WGK 3 L ♦ HS 29031300

Assay (GC)	min. 99.0 %
Density (20 °C)	1.478 – 1.482
Water	max. 0.05 %
Acidity	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

Cat.No.	Size
45627.01	250 ml
45627.02	2,5 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)

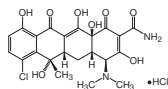
Cat.No.	Size
39554.02	500 ml

■ **Chloromycetin**

see 16785 Chloramphenicol, page 25, 283

■ **Chlortetracycline-HCl** research grade

(Aureomycin)

C₂₂H₂₃ClN₂O₈·HCl ♦ M_r 515.3 ♦ CAS [64-72-2]**WARNING**H361d ♦ EINECS 200-591-7 ♦ WGK 1 ♦
HS 29413000

Ph. Eur. Produced by *Streptomyces aureofaciens*. Mixture of antibiotics, main component chlortetracycline-HCl. Was the first tetracycline used in therapy. Tetracyclines are bacteriostatic and 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. Used for fluorescence assays on spermatozoa studies (2,3,4).

Assay (HPLC)	min. 89.5 %
Tetracycline HCl	max. 8.0 %
Sum of both components	94.5 – 102.0 %

References:

1. Soeflor, R.E.B. et al. (1998) Clin. Experiment. Metastasis **16**, 217-25
2. DasGupta, S. et al. (1993) J. Reprod. Fertil. **99**, 135-43
3. Collin, S. et al. (2000) J. Andrology **21**, 938-43
4. Kaneto, M. et al. (2002) Animal Reprod. Sci. **73**, 197-209
5. Lopez, M.I. et al. (2008) J. Agr. Food Chem. **56**, 1553-9

Cat.No.	Size
14200.02	5 g

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

(CHAPS)

C₃₂H₅₈N₂O₇S ♦ M_r 614.9 ♦ CAS [75621-03-3]**WARNING**

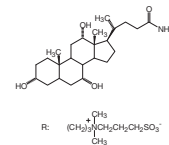
H315-H319-H335 ♦ WGK 1 ♦ HS 29239000

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

Assay (from N) min. 97.0 %

References:

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

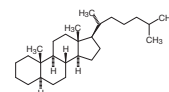


Cat.No.	Size
17038.01	1 g
17038.02	5 g
17038.03	25 g
17038.04	100 g

■ **5α-Cholestane** analytical gradeC₂₇H₄₈ ♦ M_r 372.7 ♦ CAS [481-21-0]

EINECS 207-562-8 ♦ HS 29021900

Cat.No.	Size
17060.02	250 mg

■ **Cholesterol** cryst. research grade

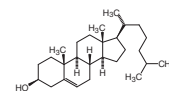
(3β-Hydroxy-5-cholestene; 5-Cholesten-3β-ol)

C₂₇H₄₆O ♦ M_r 386.7 ♦ CAS [57-88-5]

EINECS 200-353-2 ♦ WGK 1L ♦ HS 29061900

Assay (GC) min. 95.0 %

Cat.No.	Size
17101.01	100 g

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

(Sodium cholate)

C₂₄H₃₉O₅·Na ♦ M_r 430.5 ♦ CAS [361-09-1]

EINECS 206-643-5 ♦ WGK 1 ♦ HS 29181930

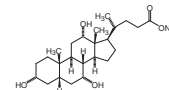
Important surfactant in membrane chemistry. Excellent solubilizer for receptors, pigments and phospholipids.

Assay (titr.) 98.0 – 101.0 %

References:

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

Cat.No.	Size
17126.02	100 g
17126.03	500 g

■ **Choline-chloride** research grade

(N-(2-Hydroxyethyl)trimethylammonium-chloride))

C₅H₁₄ON⁺Cl⁻ ♦ M_r 139.6 ♦ CAS [67-48-1]

EINECS 200-655-4 ♦ WGK 1L ♦ HS 29231000

DAC. Tested for its suitability in tissue culture.

Assay (titr.) 98.0 – 100.5 %

Cat.No.	Size
17130.04	500 g

Become a SERVA Online-Shopper!
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24 hours per day, 7 days a week.

Chromomycin A₃ research grade

C₅₇H₈₂O₂₆ ♦ M_r 1183.3 ♦ CAS [7059-24-7]



DANGER
H300-H310-H330-H360D ♦
GGVSE/ADR 6.1 I UN2811 ♦

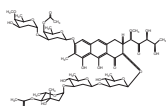
IATA 6.1 I UN2811 ♦ EINECS 230-348-0 ♦ WGK 3L ♦
HS 29419000

Storage temperature +2 °C to +8 °C

Inhibitor of DNA-dependent RNA-synthesis (1). For fluorescent chromosome banding (2).

References:

- Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
- Schweizer, D. (1976) Chromosoma (Berl.) **58**, 307-24



Cat.No.	Size
17148.01	10 mg

Chromotrope FB

see 14410 Azorubin, page 16, 369

Chymostatin research grade

(((S)-1-Carboxy-2-phenylethyl)-carbamoyl-α-2-imino-hexahydro-4(S)-pyrimidyl)-(S)-glycyl-X-phenylalaninal)
CAS [9076-44-2]

HS 29241900

Storage temperature -15 °C to -25 °C

Mixture of 3 components differing in amino acid composition at position X with component A as major form (approx. 70 %):

Component A (C₃₁H₄₁N₇O₆;
Mr: 607.7):

X = L-Leu

Component B (C₃₀H₃₉N₇O₆;
Mr: 593.7):

X = L-Val

Component C (C₃₁H₄₁N₇O₆;
Mr: 607.7):

X = L-Ile

Inhibitor of many proteinases e.g. chymotrypsin, chymotrypsin-like serine proteinases and lysosomal cysteine proteinases e.g. cathepsins B, H, and L (1, 2). Inhibits eosinophil peroxidase release from activated human eosinophils (3). Inhibitor of mammalian protein methylesterase activity (4). Effects on globin hydrolysis by cultured malaria parasites (5). Specific inhibitor of a chymostatin sensitive angiotensin II generating enzyme (6, 7).

References:

- Tatsuta, K. et al. (1973). J. Antibiot. **26**, 625-46
- Stein, R.L. & Strimpler, A.M. (1987) Biochemistry **26**, 2611-5
- Matsunaga, Y. et al. (1994) Arch. Biochem. Biophys. **312**, 67-74
- Veeraragavan, K. & Gagnon, C. (1987) Biochem. Biophys. Res. Commun. **142**, 603-8
- Rosenthal, P.J. (1995) Exp. Parasitol. **80**, 272-81
- Okunishi, H. et al. (1993) Jpn. J. Pharmacol. **62**, 207-10
- Okamura, T. et al. (1990) J. Cardiovasc. Pharmacol. **15**, 353-9

Cat.No.	Size
17158.01	5 mg
17158.02	25 mg

α-Chymotrypsin from bovine pancreas min. 40 U/mg powder

EC 3.4.21.1 ♦ M_r ca. 25 000 ♦ CAS [9004-07-3]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-011-00-2 ♦
EINECS 232-671-2 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Chymotrypsin A (1). Suitable for the structural elucidation of proteins. Catalyzes the hydrolysis of peptide and ester bonds at the carboxyl group of a variety of amino acids primarily those with aromatic or long aliphatic side chains (2).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-benzoyl-L-tyrosine ethyl ester (BTEE) per minute at 25 °C, pH 7.8 (3).

Activity in other units: ca. 1000 USP units/mg (1 USP unit causes decrease in absorbance at 237 nm of 0.0075 per minute at 25 °C, pH 7.0 with ATEE as substrate) (4).

References:

- Desnuelle, P. & Röver, M. (1961) Adv. Protein Chem. **16**, 139-95
- Desnuelle, P. (1960) The Enzymes 2nd Ed. **4**, 93-118
- Kang, S.H. & Fuchs, M.S. (1973) Anal. Biochem. **54**, 262-5
- USP XXI/NF XVI (1984) United States Pharmacopeial Convention, 216-7

Cat.No.	Size
17160.01	100 mg
17160.02	500 mg

Chymotrypsinogen A from bovine pancreas

ca. 60 U/mg lyophil. salt-free

M_r ca. 25 000 ♦ CAS [9035-75-0]

EINECS 232-905-3 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Inactive precursor of chymotrypsin (1, 2).

Unit definition: see cat. no. 17160 (chymotrypsin activity after activation by trypsin).

Activity in other units: ca. 1 200 USP units/mg (potential activity) and ca. 10 USP units/mg (native activity). USP units see cat. no. 17160.

Extraneous activity: ca. 1 U/mg α-chymotrypsin before trypsin activation.

References:

- Desnuelle, P. & Röver, M. (1961) Adv. Protein Chem. **16**, 139-95
- Wilcox, P.E. (1970) Methods Enzymol. **19**, 64-80

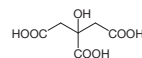
Cat.No.	Size
17200.03	500 mg

Citric acid-H₂O analytical grade

C₆H₈O₇·H₂O ♦ M_r 210.1 ♦ CAS [5949-29-1]



WARNING
H319 ♦ EINECS 201-069-1 ♦ WGK 1 ♦
HS 29181400



For buffers.

Assay (hydrate)

99.5 - 101.0 %

Cat.No.	Size
38640.01	500 g
38640.02	1 kg
38640.03	5 kg

Citric acid-Na₃-salt-2H₂O analytical grade

(tri-Sodium citrate)

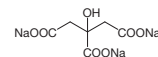
C₆H₅O₇·Na₃·2H₂O ♦ M_r 294.1 ♦ CAS [6132-04-3]

EINECS 200-675-3 ♦ WGK 1L ♦ HS 29181500

Ph.Eur.

Assay (titr.)

99.0 - 101.0 %



Cat.No.	Size
38642.02	1 kg
38642.03	5 kg

L-Citrulline research grade

(L-2-Amino-5-ureido valeric acid)

C₆H₁₃N₃O₃ ♦ M_r 175.19 ♦ CAS [372-75-8]

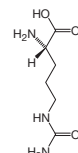
EINECS 206-759-6 ♦ WGK 1 ♦ HS 29241900

Assay (titr.)

99.0 - 101.0 %

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size
17311.02	100 g

Claforan

see 16382 Cefotaxime-Na-salt, page 23, 281

CleanGel 10 % 25S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 25 slots for 15 μl.

Cat.No.	Size
43338.01	4 gels

CleanGel 10 % 52S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 52 slots for 6 µl.

Cat.No.	Size
43340.01	4 gels

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

HS 38220000

Storage temperature -15 °C to -25 °C

20 rehydratable gels, 5 % T.

Cat.No.	Size
43350.01	20 gels

Cleland's reagent

see 20710 Dithiothreitol, page 39, 147

Cleland's reagent

see 20697 Dithioerythritol, page 38, 147

Clostridiopeptidase A

see 17458 Collagenase NB 6 GMP Grade from *Clostridium histolyticum*, page 30, 272, 316, 332

Clostridiopeptidase A

see 17465 Collagenase NB 4G Proved Grade from *Clostridium histolyticum*, page 30, 271, 315, 331

Clostridiopeptidase A

see 17455 Collagenase NB 1 Premium Grade from *Clostridium histolyticum*, page 29, 271, 314, 330

Clostridiopeptidase A

see 17452 Collagenase NB 1 GMP Grade from *Clostridium histolyticum*, page 29, 271, 315, 331

Clostridiopeptidase A

see 17454 Collagenase NB 4 Standard Grade from *Clostridium histolyticum*, page 29, 271, 315, 331

Clostridiopeptidase A

see 17459 Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*, page 30, 272, 315, 331

Clostridiopeptidase A

see 17456 Collagenase NB 8 Broad Range from *Clostridium histolyticum*, page 30, 272, 316, 332

Clostripain NB from *Clostridium histolyticum*

(Clostripain; Clostridiopeptidase B)

EC 3.4.22.8 ♦ M_r ca. 59 000 ♦ CAS [9028-00-6]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-822-2 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Clostripain is a proteinase that cleaves peptide bonds on the carboxyl side of arginine. It is also known as Endoproteinase Arg-C.

Specification:

Enzymatic activity: > 50 U/mg.

Unit definition:

1 U catalyzes the hydrolysis of 1 µmole BAEE per minute at 25 °C, pH 7.6, after activation for 3 hours with 1 mM calcium acetate and 2.5 mM dithiothreitol.

References:

- Kula et al. (1976) Biochem. Biophys. Res Commun. **69**, 389-396
- Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size
17335.01	20 mg
17335.02	50 mg
17335.03	100 mg

Closures for Dialysis

see Spectra/Por® Closures, page 183, and Universal Closures, page 186

Colcemid

see 18238 Demecolcine, page 34

Colcemid™ solution 10 µg/ml sterile filtered

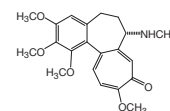
(Demecolcine solution)

HS 38220000

Storage temperature -15 °C to -25 °C

In PBS.

Colcemid = registered trademark of Ciba-Geigy.



Cat.No.	Size
47253.01	25 ml

Colchicine cryst. research grade

C₂₂H₂₅NO₆ ♦ M_r 399.44 ♦ CAS [64-86-8]

DANGER

H300-H340 ♦ Muta. 1B ♦

EG-Index 614-005-00-6 ♦

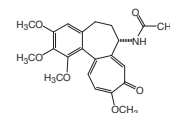
GGVSE/ADR 6.1 I UN1544 ♦ IATA 6.1 I UN1544 ♦

EINECS 200-598-5 ♦ WGK 3L ♦ HS 29399900

USP

Assay (HPLC)

94.0 - 101.0 %



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

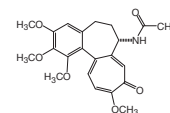
Colchicine solution 10 µg/ml sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

In PBS.

Cat.No.	Size
47252.01	25 ml



Colistin sulfate

(Polymyxin E sulfate)

C₅₃H₁₀₄N₁₆O₂₁S₂ ♦ M_r 1365.6 ♦ CAS [1264-72-8]

DANGER

H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦

IATA 6.1 III UN2811 ♦ EINECS 215-034-3 ♦

WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. Peptide antibiotic. Mixture of the sulfates of polypeptides produced by certain strains of *Bacillus polymyxa* var. *colistinus*. Acts mainly against Gram-negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Soluble in water; stable between pH 2 - 6 at 4 °C. Protect from light.

Assay (HPLC)

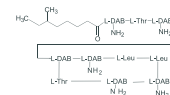
min. 77.0 %

(sum of polymyxins E1, E2, E3,

E1 - I and E1 -7 MOA)

References:

- Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63



Cat.No.	Size
17420.01	250 mg
17420.02	1 g

Collagen R solution 0.2 % sterile

M_r ca. 300 000

HS 35040090

Storage temperature +2 °C to +8 °C

Type 1 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:

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

Cat.No.	Size
47254.01	20 ml
47254.02	100 ml

Collagen R solution 0.4 % sterile

M_r 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 NB 1 Premium Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3.00 U/mg

Endotoxin: ≤ 10.0 EU/mg (Ph. Eur.)

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB (cat. no. 30301) Collagenase NB 1 Premium Grade is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

For research use only. If cells are intended for transplantation into humans, Collagenase NB 1 GMP Grade (cat. no. 17452) is recommended.

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51.

Cat.No.	Size
17455.03	>= 2.000 U

Collagenase NB 1 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3000 U/mg

Endotoxin ≤ 10.0 EU/mg (Ph. Eur.)

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB GMP Grade (cat. no. 30303), Collagenase NB 1 GMP Grade is especially applicable to isolation of pancreatic islets of Langerhans.

Collagenase NB 1 GMP Grade is recommended for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definitions:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17452.01	>= 2.000 U

Collagenase NB 4 Standard Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Suitable for different applications in tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

As Collagenase NB 4 Standard Grade has comparable enzymatic properties to Collagenase NB 5 Sterile Grade (cat. no. 17459) and Collagenase NB 6 GMP Grade (cat. no. 17458), this enzyme might also be used in order to establish applications which have to meet sterile or GMP requirements like tissue engineering and transplantation.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17454.02	500 mg
17454.01	1 g

Collagenases:
see special chapter at p. 269

■ Collagenase NB 4G Proved Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenase) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced mix of neutral protease, clostripain and trypsin-like activities.
PZ activity (Wünsch): ≥ 0.18 U/mg
Suitable for isolation of a broad variety of cell types, especially for fibroblasts, human and rodent hepatocytes, frog oocytes and epithelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17465.01	500 mg
17465.02	1 g

■ Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Microbiological examination: Sterility, absence of *Clostridia*

Sterile according to Ph. Eur.

For applications where the use of sterile collagenase according to the guidelines of the European Pharmacopoeia is required.
Collagenase NB 5 Sterile Grade is applicable to tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.
See also Collagenase NB 6 GMP Grade (cat. no. 17458).

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17459.03	1 g

■ Collagenase NB 6 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.100 U/mg

Microbiological examination: Sterility, absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Sterile according to Ph. Eur.

Manufactured according to EU GMP guidelines.

For applications which have to meet GMP requirements like tissue engineering and transplantation.

Collagenase NB 6 GMP Grade is applicable to tissue dissociation such as isolation of human ADSCs, stem cells, chondrocytes, fibroblasts, neuronal and endothelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17458.03	1 g
17458.04	100 mg

■ Collagenase NB 8 Broad Range from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains class I and class II collagenase (1) as well as reduced levels of clostripain, trypsin-like activities and neutral protease.
Chromatographically purified.

PZ activity (Wünsch): ≥ 0.90 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Suitable for a broad range of different applications in tissue dissociation such as isolation of rodent pancreatic islets of Langerhans, porcine hepatocytes, cardiomyocytes, tumor cells, muscle cells and human osteoblasts. Increased PZ activity compared to Collagenase NB 4 Standard Grade (cat. no. 17454) and Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size
17456.01	250 mg
17456.02	1 g

Collagenase N Reference Content from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Collagenase activity is re-evaluated quarterly.

Reference substance according to GMP guidelines for enzyme activity determination.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size
17463.01	>= 50 mg

Collagenase N Reference Identity from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP guidelines.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size
17464.01	>= 50 mg

Anti-Collagenase (*Clostridium histolyticum*), polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB.

IgG fraction purified by Protein G affinity chromatography.

100 µg IgG (1 mg/ml) supplied as solution in PBS with 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Anti-Collagenase polyclonal antibody can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Tested in ELISA and Western blot.

Store aliquots at -15 to -25 °C. Thaw at 4 °C. Avoid freeze and thaw cycles.

Cat.No.	Size
58050.01	100 µg

Anti-Collagenase (*Clostridium histolyticum*) HRP, polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB. Conjugated with horseradish peroxidase.

IgG fraction purified by affinity chromatography.

100 µg IgG conjugated with HRP supplied as solution in PBS with 50 % glycerine and 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) HRP polyclonal antibody

is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Tested for ELISA.

Store aliquots at -15 to -25 °C

Cat.No.	Size
58051.01	100 µg

Collagenase substrate per E. Wünsch

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

C₃₈H₅₂N₁₀O₈ ♦ M_r 776.9 ♦ CAS [17011-78-8]

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

Storage temperature -15 °C to -25 °C

Purity (HPLC) > 97.0 %

References:

1. Evans, C.H. (1981) Biochem. J. **195**, 677-84
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51
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

Congo Red research grade

(Direct Red 28)

C₁₂H₂₂N₆O₆S₂Na₂ ♦ M_r 696.7 ♦

CAS [573-58-0]



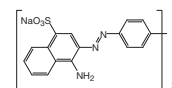
DANGER

H350-H361d ♦ Carc. 1B, Repr. 2 ♦ EG-Index 611-027-00-8 ♦

EINECS 209-358-4 ♦ WGK 2L ♦ HS 32049000

Tested for use in histology. Indicator pH 3.0 - 5.2 blue-reddish orange.

λ_{max} 496 nm.



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 ♦ C₄₇H₄₈N₃O₇S₂Na ♦ M_r 854.0 ♦

CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue G (cat. no. 35050).

λ_{max} (0.001 %, pH 7)

A 1 cm/λ_{max}/1 % pH 7

Water

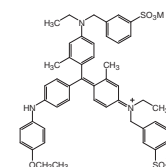
TLC

585 ± 5 nm

ca. 500

max. 10.0 %

corresponds



Cat.No.	Size
17524.01	25 g
17524.02	100 g

Coomassie® Brilliant Blue R 250

C.I. 42660 ♦ C₄₅H₄₄N₃O₇S₂Na ♦ M_r 826.0 ♦

CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue R (cat. no. 35051).

Assay (UV)

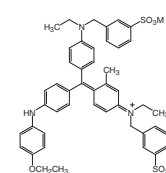
Water (KF)

TLC

min. 75.0 %

max. 10.0 %

corresponds



Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
17525.01	25 g
17525.02	100 g

Coprostanol analytical grade

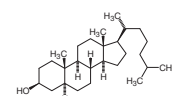
(5β-Cholestan-3β-ol)

C₂₇H₄₈O ♦ M_r 388.7 ♦ CAS [360-68-9]

EINECS 206-638-8 ♦ HS 29061310

Assay (TLC)

homogeneous



Cat.No.	Size
27225.01	25 mg

Crystal Violet research grade

(Basic Violet 3; Hexamethylparosaniline-HCl; Gentian Violet 10B; Methyl Violet 10B)

C.I.42555 ♦ C₂₅H₃₀ClN₃ ♦ M_r 408.0 ♦ CAS [548-62-9]



DANGER

H302-H318-H351-H410 ♦ Carc. 2 ♦

EG-Index 612-204-00-2 ♦ GGVSE/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. 0.17

Cat.No.	Size
27335.01	25 g
27335.02	100 g

CSF Analysis Kit for PhastSystem™

HS 38220000

Storage temperature -15 °C to -25 °C

Contains 10 gels and rehydration solutions for CSF analysis on PhastSystem, format 50 x 42 x 0.43 mm.

Cat.No.	Size
43393.01	1 kit

CTAB

see 16530 Cetyltrimethylammonium-bromide, page 25, 142, 245, 295

Cyanase™ Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C *

Supplied as solution in 50 mM Tris-HCl pH 8.0, 5 mM MgSO₄, 50 % (v/v) glycerol.

Cyanase is a cloned highly active non-Serratia based non-specific endonuclease that degrades single and double stranded DNA and RNA in as little as 1 minute.

Cyanase is easily removed from samples after the reaction is finished using the Cyanase Inactivation Resin (cat. no. 18543). The resin can be easily filtered or spun down to remove from the sample removing the Cyanase with it.

Because of its unique properties, Cyanase is effective for cell lysate clearance, protein and viral purification and nucleic acid removal from samples.

- Fastest nuclease on the market
- Broad pH range
- Active in higher salt concentrations
- Unaffected by lysozyme or detergent
- Easily inactivated and removed
- Unsurpassed stability, can be stored up to 1 year at room temperature with minimal loss of activity

Concentration 50 U/μl
pH optimum pH 7.5 - 8.0
Salt optimum 20 mM NaCl
Temperature optimum 24 °C - 37 °C

Unit definition: One Unit is the amount of enzyme that degrades 3 μg of full length λ DNA completely at 37 °C in 1 minute in 50 mM Tris-HCl pH 8.0, 6 mM MnSO₄.

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size
18542.01	10.000 U
18542.02	25.000 U

Cyanase™ Inactivation Resin

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase Inactivation Resin is a proprietary blend of Cyanase Inhibitor Protein coupled to Sepharose® Fast Flow Resin creating a novel method for inactivating and removing the Cyanase enzyme prior to downstream applications. No more worries about downstream contamination with nucleases or difficult removal processes which may compromise product integrity.

Average Particle Size: 90 μm in 50 % buffer slurry.

- Removal of Cyanase Nuclease simple and easy in as little as 20 min.
- No optimization needed
- Active over a wide range of conditions
- No interactions with other proteins or targets
- Extremely tight interaction between Cyanase and resin

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size
18543.01	1 ml
18543.02	5 ml

Cyanase™ Inactivation Resin Cartridges

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase™ Inactivation Cartridges combine 50 μl of Inactivation Resin into a 700 μl silica based spin column for easy removal of Cyanase™ from any reaction. Each spin column is a 10 - 20 μm pore size/polypropylene, snap off base, with sealable screw cap. Reactions are mixed and incubated inside the spin column in the same manner that is used for the standard inactivation resin. After mixing for 20 min, samples are then spun down into a provided collection tube for downstream processing. No worry of contaminating downstream samples with resin, no volume additions!

Can be used for Pre-PCR treatment of high sensitivity assays. Just treat PCR master mix with Cyanase™, add to column, incubate with resin, and spin down into collection tube. Target and Primers are added after treatment and PCR is run as normal.

- Ideal for high throughput proteomics or nucleic acid dependent applications
- Amplicon and Pre-PCR clean up of master mixes
- Treatment of samples of low volume/unique buffer properties where additional buffer/products are problematic

Kit contains 20 cartridges and 20 collection tubes and caps for sample recovery.

Cat.No.	Size
18544.01	20 reactions

Cyanocobalamin

see 38310 Vitamin B₁₂, page 121,

Order SERVA products
in bulk quantities
for an even better price.

■ Cycloheximide cryst. pure

(Actidione®; β-[2-(3,5-Dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-glutarimide)

$C_{15}H_{23}NO_4$ ♦ M_r 281.4 ♦ CAS [66-81-9]



DANGER
H300-H341-H360D-H411
♦ Muta. 2, Repr. 1B ♦

EG-Index 613-140-00-8 ♦ GGVSE/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 (TLC) min. 95.0 %
Assay (HPLC) min. 90.0 %
MP 98 - 112 °C

Actidione = registered trademark of Upjohn.

References:

- McKeehan, W. a. 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. a. Buetow, D.E. (1972) Biochem. J. **128**, 353-65
- Jilek, F. et al. (2000) Animal Reprod. Sci. **63**, 101-11
- Hanten, J.J. a. 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

■ D-Cycloserine

([(R)-4-Amino-3-isoxazolidinone])

$C_3H_6N_2O_2$ ♦ M_r 102.1 ♦ CAS [68-41-7]

EINECS 200-688-4 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Antibiotic from *Streptomyces griseus* against mycobacteria. Inhibitor of bacterial cell wall synthesis. Antimetabolite of D-alanine.

Activity min. 900 µg/mg
MP (°C) ca. 150 (dec.)

Cat.No.	Size
17686.01	1 g
17686.02	5 g

■ L-Cysteine·HCl·H₂O cryst. research grade

(Cys·HCl; L-2-Amino-d-mercaptopropionic acid hydrochloride)

$C_3H_7NO_2S \cdot HCl \cdot H_2O$ ♦ M_r 175.6 ♦ CAS [7048-04-6]



WARNING
H315-H319-H335 ♦ EINECS 200-157-7 ♦ WGK 1L ♦ HS 29309016

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
17769.01	25 g
17769.02	100 g
17769.03	250 g
17769.04	1 kg

■ L-Cystine research grade

((Cys)₂; L-(-)-3,3'-Dithiobis(2-aminopropanoic acid))

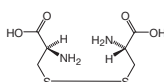
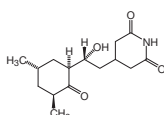
$C_6H_{12}N_2O_4S_2$ ♦ M_r 240.3 ♦ CAS [56-89-3]

EINECS 200-296-3 ♦ WGK - ♦ HS 29309013

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
17880.01	50 g
17880.02	250 g
17880.03	1 kg



■ Cytochalasin B

$C_{29}H_{37}NO_5$ ♦ M_r 479.6 ♦ CAS [14930-96-2]



DANGER
H300-H310-H330-H361d ♦
GGVSE/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

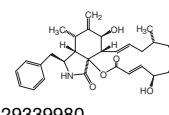
From *Helminthosporium dematoides*. Reversible inhibitor of cell motion (1). Inhibits phagocytosis (2). Induces polyploidy (3). Induces nuclear extrusion (4, 5).

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



■ Cytochrome C from horse heart lyophil.

M_r ca. 12400 ♦ CAS [9007-43-6]

EINECS 232-700-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Ca. 10 % may be present in the reduced form. Prepared without the use of TCA.

Assay reduced 90 - 100 %

Cat.No.	Size
18022.01	25 mg
18022.02	100 mg
18022.03	500 mg

■ D.E.R.® 736 pract.

(ERL-4206 plasticizer)

CAS [9072-62-2]



WARNING
H319 ♦ WGK 1L ♦ HS 39073000

Shorter chain than D.E.R.® 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:

- Kushida, H. (1966) J. Electron. Microsc. **16**, 278-80

Cat.No.	Size
18247.01	100 ml

■ DAB

see 18865 3,3'-Diaminobenzidine·4HCl·xH₂O, page 36, 344, 368, 370

■ Dactinomycin

see 10710 Actinomycin D, page 5, 286

■ DAPI

see 18860 4',6'-Diamidino-2-phenylindole·2HCl, page 36, 370

■ DDSA

see 20755 2-Dodecenylsuccinic acid anhydride, page 39, 360

■ 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

■ Decalcifier concentrate plus indicator

HS 38220000

pH-neutral decalcifying solution on the basis of an organic chelating agent. Depending on the calcium content the working concentration is 1:1 – 1:10. The solution contains an indicator, which changes the colour from purple to red, if the decalcifying solution is exhausted.

Cat.No.	Size
18141.01	100 ml

■ 3-(Decyldimethylammonio)propanesulfonate inner salt

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

■ N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

■ Delect Buffer Kit pH 7.3

HS 38220000

Buffer system for DNA electrophoresis and native anodal protein electrophoresis in CleanGels. Contains gel rehydration buffer, anode buffer, cathode buffer, cooling contact fluid and electrode wicks.

Cat.No.	Size
43355.01	1 kit

■ Demecolcine research grade

(Colcemid; N-Deacetyl-N-methylcolchicine)

C₂₁H₂₅NO₅ ♦ M_r 371.42 ♦ CAS [477-30-5]

DANGER

H300-H330 ♦ GGVSE/ADR 6.1 II UN1544 ♦

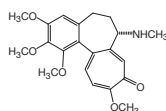
IATA 6.1 II UN1544 ♦ EINECS 207-514-6 ♦

WGK 3L ♦ HS 29399900

Assay (HPLC)

min. 97.0 %

Colcemid = registered trademark of Ciba-Geigy.



Cat.No.	Size
18238.01	5 mg
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. 0.2 µm filtered.

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® 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
39603.02	5 x 10 ml

■ Deoxycholic acid-Na-salt pure

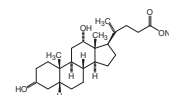
(Sodium deoxycholate)

C₂₂H₃₉O₄·Na ♦ M_r 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 (titr.)	min. 99.0 %
A 1 cm/1 % in water	
230 nm	max. 0.5
260 nm	max. 0.2
280 nm	max. 0.1
Loss on drying (2 h, 100 °C)	max. 5.0 %
Heavy metals (Pb)	max. 50 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'-oligo-nucleotide hydrolase)

EC 3.1.21.1 ♦ M_r 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⁺⁺-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

■ Deoxyribosylthymine

see 18600 2'-Deoxythymidine, page 34

■ 2'-Deoxythymidine analytical grade

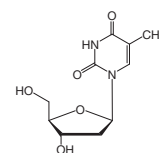
(2'-dThd; Deoxyribosylthymine; Thymidine; 5-Methyl-uracil-2'-deoxyriboside)

C₁₀H₁₄N₂O₅ ♦ M_r 242.2 ♦ CAS [50-89-5]

EINECS 200-070-4 ♦ WGK 1 ♦ HS 29349990

Assay (HPLC) min. 98.0 %

Cat.No.	Size
18600.02	1 g
18600.03	5 g



■ DEPC

see 18835 Diethyl pyrocarbonate, page 36, 295

■ DePeX



DANGER

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

■ Dermatan Sulfate Standard pure

CAS [54328-33-5]

HS 29389090

Storage temperature +2 °C to +8 °C

Suitable for applications such as identification of dermatan sulfate impurities in unfractionated and fractionated heparins by CE, ¹H NMR spectroscopy and other analytical methods. Applicable to analytic method validation and system suitability test (SST). Dermatan Sulfate Standard is highly purified ($\geq 95\%$) from impure crude heparin.

Cat.No.	Size
31255.01	25 mg
31255.02	100 mg
31255.03	250 mg

■ 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.

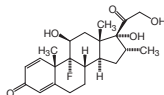
Cat.No.	Size
34205.01	1 L
34205.02	10 L
34205.03	10 x 10 L

■ Detergent Sampler

see 20785 SERVA BN PAGE Detergent Sampler, page 91, 145

■ Dexamethasone research grade

(9 α -Fluoro-11 β ,17,21-trihydroxy-16 α -methyl-1,4-pregnadiene-3,20-dione; Prednisolone F; 1,4-Pregnadiene-3,20-dione-9 α -fluoro-16 α -methyl-11 β ,17 α ,21-triol; 9 α -Fluoro-16 α -methylprednisolone (3,20-dione))

C₂₂H₂₉FO₅ ♦ M_r 392.5 ♦ CAS [50-02-2]

DANGER

H315-H319-H335-H360Df ♦ EINECS 200-003-9 ♦ WGK 1 ♦ HS 29372100

Selectively regulates the activity of enzymatic markers of cerebral endothelial cell lines (1). Inhibits the expression of the inducible but not the constitutive nitric oxide synthase in vascular endothelial cells.

Assay (UV) 97.0 - 103.0 %

References:

1. Juillerat-Jeanneret, L. et al. (1992) In Vitro Cell Dev. Biol. **28A**, 537-43
2. Radomski, M.W. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10043

Cat.No.	Size
18660.01	100 mg
18660.02	1 g

■ DEAE-Dextran research grade

M_r Made from Dextran of molecular weight of approx. 150 000.

WGK 2L ♦ HS 38210000

DEAE-Dextran is used for transfection in mammalian cell culture. The method is suitable for transient expression of cloned genes, but not for stable transformation of cells. Some cell types like BSC-1 cannot be exposed to calcium phosphate because of its toxicity.

But DEAE-Dextran is as well toxic for cells and therefore this transfection method can only be used for certain cell types, e.g. CV-1 and COS cells. Another advantage of DEAE-Dextran transfection is the necessary lower DNA amount compared to calcium phosphate.

Nitrogen assay 3.0 - 3.8 %

Loss on drying max. 10 %

References:

1. Sambrook, J., Fritsch, E.F. & Maniatis, T. (1989) Molecular Cloning: A Laboratory Manual, 2nd Edition S. 16.41-16.46. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York.

Cat.No.	Size
18686.01	25 g
18686.02	100 g

■ Dextran sulfate 500-Na-salt stabilized (0.5 - 2 % phosphate)

M_r ca. 500 000 ♦ CAS [9011-18-1]

EINECS 232-677-5 ♦ HS 39139000

Contains 0.5 - 2 % phosphate for stabilization. Special quality for the precipitation of lipoproteins (1, 2). Ribonuclease inhibitor (3). For reinforcing plaque formation by EMC-virus (4). For accelerating DNA hybridization (5).

References:

1. Dangerfield, W.G. & Faulkner, G. (1964) Chim. Acta **10**, 123-33
2. Wieland, H. & Seidel, D. (1973) Clin. Chem. **19**, 1139-41
3. Ascione, R. & Arlinghaus, R.B. (1970) Biochim. Biophys. Acta **204**, 478-88
4. Takemoto, K.K. & Liebhafner, H. (1962) Virology **17**, 499-501
5. Wahl, G.M. et al. (1979) Proc. Natl. Acad. Sci. USA **76**, 3683-7

Cat.No.	Size
18706.01	25 g
18706.02	50 g
18706.03	100 g

■ Dextran FP 40 research grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Ph. Eur.

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
18665.01	100 g
18665.02	500 g

■ Dextran 4 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight ca. 4000

Cat.No.	Size
18687.01	100 g
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
18689.01	100 g
18689.02	500 g

■ Dextran 100 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 100 000 - 200 000

Cat.No.	Size
18693.01	100 g
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
18696.02	500 g

■ Dextrose

see 22700 α -D-Glucose, page 50, 321, 345

■ Diacetyldichlorofluorescein

see 19353 2',7'-Dichlorofluorescein diacetate, page 36, 345

■ Diacetylfluorescein

see 21575 Fluorescein diacetate, page 45, 345, 371

4,6-Diamidino-2-phenylindole-2HCl analytical grade

(DAPI)

 $C_{16}H_{15}N_5 \cdot 2HCl$ $\diamond$ M_r 350.25 $\diamond$ CAS [28718-90-3]EINECS 249-186-7 $\diamond$ WGK 1 $\diamond$ HS 29339980

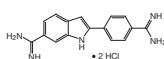
Storage temperature +2 °C to +8 °C

Fluorescent dye binding selectively to DNA. For demonstration of mycoplasmas and virus 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
18860.02	25 mg

3,3'-Diaminobenzidine-4HCl·xH₂O research grade

(DAB)

 $C_{12}H_{14}N_4 \cdot 4HCl \cdot xH_2O$ $\diamond$ M_r 360.1 (anhydr.) $\diamond$ CAS [868272-85-9]

WARNING

H302-H332-H351 $\diamond$ Carc. 2 $\diamond$ EINECS 231-018-9 $\diamond$ WGK 3 $\diamond$ HS 29215990

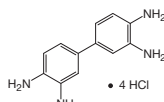
Storage temperature +2 °C to +8 °C

Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (titr.) 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
18865.01	100 mg
18865.02	1 g

Diazoresorcinol

see 34226 Resazurin-Na-salt, page 88, 323, 373

4,5,4',5'-Dibenzo-3,3'-diethyl-9-methylthiacarbo-cyanine-bromide

(Stains-all; 1-Ethyl-2-thiazoline-2[3-(1-ethylnaphthol [1,2]-thiazoline-2-ylidene)-2-methylpropenyl]naphthol [1,2-d] thiazolium bromide)

 $C_{30}H_{27}N_2S_2 \cdot Br$ $\diamond$ M_r 559.6 $\diamond$ CAS [7423-31-6]EINECS 231-047-7 $\diamond$ WGK 1 $\diamond$ HS 29420000

Storage temperature +2 °C to +8 °C

Universal dye.

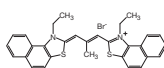
 λ max. 572 nm $\pm$ 4

A 1 cm/0.0001 %

in methanol at λ max. ca. 0.2 ϵ max./methanol ca. 112 000

References:

1. Kutsch, H. & Schleich, C. (1989) Fresenius Z. Anal. Chem. **333**,



Cat.No.	Size
19284.01	100 mg

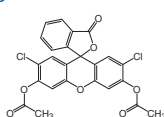
2,7'-Dichlorofluorescein diacetate analytical grade

(Diacetyldichlorofluorescein)

 $C_{24}H_{16}Cl_2O_7$ $\diamond$ M_r 487.3 $\diamond$ CAS [4091-99-0]WGK 1 $\diamond$ HS 29329900

Storage temperature -15 °C to -25 °C

MP 205 - 210 °C



Cat.No.	Size
19353.03	100 mg

2,6-Dichlorophenolindophenol-Na-salt analytical grade

(Tillman's reagent; Phenolindo-2,6-dichlorophenol; DPIP)

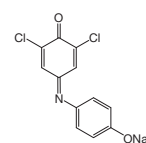
 $C_{12}H_6Cl_2NO_2 \cdot Na$ $\diamond$ M_r 290.1 $\diamond$ CAS [620-45-1]EINECS 210-640-4 $\diamond$ WGK 1 $\diamond$ HS 29252900

For vitamin C determination.

 λ max. 0.001 % in water 604 $\pm$ 4 nm

References:

1. Hiromi, K. et al. (1980) Anal. Biochem. **101**, 421-6



Cat.No.	Size
19354.01	5 g

Diethyl pyrocarbonate research grade

(DEPC; Ethoxy formic anhydride; Pyrocarbonic acid diethyl ester)

 $C_6H_{10}O_5$ $\diamond$ M_r 162.14 $\diamond$ CAS [1609-47-8]

WARNING

H302-H315-H319-H332-H335 $\diamond$ EINECS 216-542-8 $\diamond$ WGK 1 $\diamond$ 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. Tsurushin, S. et al. (1975) Biochim. Biophys. Acta **410**, 451-60
2. Berger, S.L. (1975) Anal. Biochem. **67**, 428-37
3. Paull, O. & Genth, H. (1966) Z. Lebensm.-Unters.-Forsch. **132**, 216-27

Cat.No.	Size
18835.01	10 ml
18835.02	100 ml

Digitonin analytical grade

(Digitin)

 $C_{56}H_{92}O_{29}$ $\diamond$ M_r 1229.34 $\diamond$ CAS [11024-24-1]

DANGER

H301-H311-H331 $\diamond$ GGVSE/ADR 6.1 II UN2811 $\diamond$ IATA 6.1 II UN2811 $\diamond$ EINECS 234-255-6 $\diamond$ WGK 3L $\diamond$ HS 29389010

USP. 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. Scallan, 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
19550.01	500 mg
19550.02	1 g

Digitonin water soluble research grade

 $C_{56}H_{92}O_{29}$ $\diamond$ M_r 1229.34 $\diamond$ CAS [11024-24-1]

DANGER

H301-H311-H331 $\diamond$ GGVSE/ADR 6.1 II UN2811 $\diamond$ IATA 6.1 II UN2811 $\diamond$ EINECS 234-255-6 $\diamond$ WGK 3L $\diamond$ HS 29389010

Turbidity: 1 g is suspended in 20 ml water and dissolved by heating to 95 - 98 °C for 15 minutes.

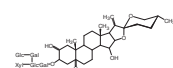
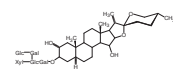
Cat.No.	Size
19551.01	250 mg
19551.02	1 g

2,2-Dihydroxy-1,3-indanedione

see 30410 Ninhydrin, page 73

4,6-Dihydroxy-2-thiopyrimidine

see 36108 2-Thiobarbituric acid, page 112



Diisopropylfluorophosphate pure

(DFP; Diisopropyl phosphorofluoridate)

$C_6H_{14}FPO_3$ ♦ M_r 184.15 ♦ CAS [55-91-4]



DANGER

H300-H310-H314-H330 ♦ GGVSE/ADR 6.1 I UN2927
♦ IATA 6.1 I UN2927 ♦ EINECS 200-247-6 ♦ WGK 2 ♦

HS 29199000

Storage temperature +2 °C to +8 °C

Acetylcholinesterase inhibitor. Highly toxic; do not inhale vapors and avoid skin contact. Protect from moisture.

Assay (GC) ca. 97.0 %

References:

1. Wilson, B.W. & Walker, C.R. (1974) Proc. Natl. Acad. Sci. USA **71**, 3194-8

Cat.No.	Size
77205.01	1 g

threo-1,4-Dimercapto-2,3-butanediol

see 20710 Dithiothreitol, page 39, 147

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]

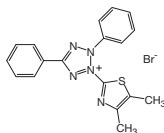
EINECS 206-069-5 ♦ WGK 2L ♦ HS 29341000

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 (titr.) min. 98.0 %

References:

- Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
- Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
- Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
- 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

N,N-Dimethyl-N-dodecyl-N-(3-sulfopropyl)ammonium betaine

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

Dimethyl sulfoxide molecular biology grade

(DMSO)

C_2H_6OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160 mg/m³ ♦ 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]



WARNING

H315-H319 ♦ MAK/TRK 160mg/m³ ♦ 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:

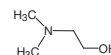
- Kelly, R.B. & Sinsheimer, R.L. (1967) J. Mol. Biol. **29**, 229-36
- Spencer, R.L. & Wold, F. (1969) Anal. Biochem. **32**, 185-90

Cat.No.	Size
20385.01	250 ml
20385.02	1 L

Dimethylaminoethanol research grade

(N,N-DMAE; S-1; Dimethylethanolamine)

$C_4H_{11}NO$ ♦ M_r 89.1 ♦ CAS [108-01-0]



DANGER

H226-H302-H312-H314-H332 ♦ EG-
Index 603-047-00-0 ♦ GGVSE/ADR 8 II UN2051 ♦
IATA 8 II UN2051 ♦ EINECS 203-542-8 ♦ WGK 1L ♦ HS 29221985

Slightly yellow catalyst of very low viscosity, „accelerator“ for epoxy-polyester condensation (1). Inhibits ethanolamine phosphokinase (2). Also used for electron microscopy.

Assay (GC) min. 99.0 %

References:

- Spurr, A. (1969) J. Ultrastruct. Res. **26**, 31-43
- Weinhold, P.A. & Rethy, V.B. (1972) Biochim. Biophys. Acta **276**, 143-54

Cat.No.	Size
20130.04	5 ml
20130.02	100 ml

N, N-Dimethylbenzylamine

see 14835 Benzyl dimethylamine, page 17, 360

Dimethylformamide molecular biology grade

(DMF; DMFA)

C_3H_7NO ♦ M_r 73.10 ♦ CAS [68-12-2]



DANGER

H226-H312-H319-H332-H360D ♦ Repr. 1B
♦ MAK/TRK 10 ml/m³, 30 mg/m³ ♦ EG-
Index 616-001-00-X ♦ GGVSE/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
39756.02	1 L

Dimethylformamide research grade

(DMF; DMFA)

C_3H_7NO ♦ M_r 73.1 ♦ CAS [68-12-2]



DANGER

H226-H312-H319-H332-H360D ♦ Repr. 1B
♦ MAK/TRK 10 ml/m³, 30 mg/m³ ♦ EG-

Index 616-001-00-X ♦ GGVSE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦
EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

Assay (GC) min. 99.9 %
BP 152 - 154 °C

Cat.No.	Size
20270.03	250 ml
20270.04	1 L

1,9-Dimethylmethylen blue-chloride pure

[[3,7-Bis(dimethylamino)-1,9-dimethyldiphenothiazin-5-ium chloride]]
 $C_{18}H_{22}ClN_3S \cdot 0.5 ZnCl_2$ ♦ M_r 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).

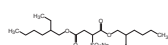
References:

1. Taylor, K.B. & Jefree, G.B. (1969) Histochem. J. **1**, 199-204
2. Toepfer, K. (1970) Histochemie **21**, 64-72
3. Farndale, R.W. et al. (1982) Connect. Tissue Res. **9**, 247-8
4. Klompmakers, A.A. & Hendriks, T. (1986) Anal. Biochem. **153**, 80-4

Cat.No.	Size
20335.01	1 g

Diocetyl sulfosuccinate-Na-salt research grade

((Bis-2-ethylhexyl)sodium sulfosuccinate; Aerosol OT)
 $C_{20}H_{37}O_7S_2Na$ ♦ M_r 444.6 ♦ CAS [577-11-7]



DANGER

H302-H315-H318 ♦ EINECS 209-406-4 ♦ WGK 2L ♦
 HS 34029090

Ph.Eur. Detergent; water solubility at 20 °C ca. 1.5 %, at 70 °C ca. 5 %.
 Suitable for reverse micellar solubilization of enzymes, cell organelles and
 bacterial cells.

Assay (titr.) min. 98.0 %

References:

1. Bru, R. et al. (1989) Biotechnol. Bioeng. **34**, 304-8
2. Kabanov, A.V. et al. (1989) Biochim. Biophys. Acta **996**, 147-52
3. Haering, G. et al. (1987) Ann. N.Y. Acad. Sci. **506**, 337-44
4. Hochkoeppler, A. et al. (1989) Biotechnol. Bioeng. **33**, 1477-81

Cat.No.	Size
20540.02	500 g

Direct Red 28

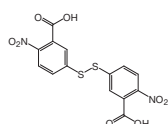
see 27215 Congo Red, page 31, 370

L-(-)-3,3'-Dithiobis(2-aminopropanoic acid)

see 17880 L-Cystine, page 33

5,5'-Dithiobis(2-nitrobenzoic acid) research grade

(DTNB; Ellman's reagent)
 $C_{14}H_8N_2O_6S_2$ ♦ M_r 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.

Asay (titr.) 99.0 - 101.0 %
 Molar extinction coefficient 13 600 - 14 250
 (l mol⁻¹ cm⁻¹)

References:

1. Ellman, G.L. (1959) Arch. Biochem. Biophys. **82**, 70-7

Cat.No.	Size
20735.02	5 g
20735.03	25 g

Dithioerythritol

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]



WARNING

H302-H312-H315-H319-H332-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:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) J. Biol. Chem. **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) Biochemistry **11**, 2939-44

Cat.No.	Size
20697.02	1 g
20697.03	5 g
20697.04	25 g



Dithioerythritol molecular biology grade

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]



WARNING

H302-H312-H315-H319-H332-H335 ♦ EINECS 229-998-8 ♦
 WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected. Quantitatively reduces disulfide groups, forming
 a cyclic disulfide (1, 2, 3).

Assay (titr.) min. 99.0 %
 MP 82 - 86 °C

A 1 cm/0.02 M in H₂O

283 nm max. 0.04

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) J. Biol. Chem. **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) Biochemistry **11**, 2939-44

Cat.No.	Size
39758.01	1 g
39758.02	5 g
39758.03	25 g

Dithiothreitol electrophoresis grade

$C_4H_{10}O_2S_2$ ♦ M_r 154.25 ♦ CAS [3483-12-3]



WARNING

H302-H315-H319-H332-H335 ♦ 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. 90.0 %
 MP 40 - 99.0 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2

Cat.No.	Size
20711.01	1 g
20711.02	5 g
20711.03	25 g



Dithiothreitol

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.25



WARNING

H302-H315-H319-H332-H335 ♦ 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:

1. 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)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.25



WARNING

H302-H315-H319-H332-H335 ♦ 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:

1. 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 37

DMSO

see 20385 Dimethyl sulfoxide, page 37, 320, 374

DNA Disc Electrophoresis

HS 38220000

Buffer system for native and denaturing DNA electrophoresis in CleanGels. Contains gel rehydration buffer, electrode buffer, electrode wicks, and drying cardboards.

Cat.No.	Size
43356.01	1 kit

DNA Fragment Analysis Kit

HS 38220000

Storage temperature -15 °C to -25 °C

Polyacrylamide gel electrophoresis is the optimal separation technique for DNA fragments below 1-kilobase length.

The DNA Fragment Analysis Kit is optimized for SSCP analysis and contains 4 CleanGels 15 % with 52 sample slots, rehydration buffer, electrode buffer, buffer wicks, and cooling contact fluid.

CleanGels are 0.42 mm thin pre-polymerized polyacrylamide gels, washed and dried down on the film-backing. Short before use they are rehydrated in the DNA disc buffer solution using a dedicated tray: the CleanPool (cat. no. HPE-A01.01). The gels are run on a horizontal flatbed equipment like the SERVA BlueHorizon™ chamber or the HPE™ Tower.

Cat.No.	Size
43353.01	1 kit

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:

1. Zamenhoff, S. (1958) Biochem. Prep. **6**, 6-12
2. Bonner, J. & Huang, R.C.C. (1963) J. Mol. Biol. **6**, 169-74
3. J. Sambrook, E.F. Fritsch, T. Maniatis (1989) Molecular Cloning - A Laboratory Manual, B15

Cat.No.	Size
18580.01	25 g
18580.02	100 g

DNA Loading Buffer

see 42544 SERVA PRIME DNA Sample Buffer (3x), page 95, 249

DNA Molecular Weight Markers

see SERVA DNA Standards, page , 230

DNA Sample Buffer

see 42544 SERVA PRIME DNA Sample Buffer (3x), page 95, 249

DNase I

see 18535 Deoxyribonuclease I from Bovine Pancreas min. 3000 Kunitz units/mg, page 34, 135, 290, 333

2-Dodecenylsuccinic acid anhydride pract.

(DDSA; 2-Dodecenylsuccinic anhydride;
 EPON hardener DDSA)

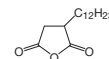
$C_{16}H_{26}O_3$ ♦ M_r 266.38 ♦ CAS [25377-73-5]



WARNING

H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171990

Hardener for epoxy resins.



Cat.No.	Size
20755.01	100 g
20755.02	1 kg

N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate research grade

(Sulfobetaine SB 12; Ralufon DL; N,N-Dimethyl-N-dodecyl-N-(3-sulfopropyl)ammonium betaine)
 $C_{17}H_{37}NO_3S$ ♦ M_r 335.55 ♦ CAS [14933-08-5]

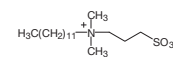
EINECS 239-002-3 ♦ WGK 1 ♦ HS 34021900

Zwitterionic surfactant for solubilizing membrane proteins without denaturation. Applicable over a wide pH-range.

Assay (titr.) min. 98.0 %

References:

1. Gonne, A. & Ernst, R. (1978) Anal. Biochem. **87**, 28-38
2. Dekker, J.P. et al. (1988) Biochim. Biophys. Acta **936**, 307-18
3. Mazhul, L.A. et al. (1988) Mol. Genet. Microbiol. Virol. **12**, 42-7



Cat.No.	Size
20761.02	10 g
20761.03	50 g

Products for
HPE™ 2D-Gelelectrophoresis
 and Proteomics:
 see special chapter at p. 215

Dodecyl-β-D-maltoside research grade

(Lauryl-β-D-maltoside)

 $C_{24}H_{46}O_{11}$ ♦ M_r 510.63 ♦ CAS [69227-93-6]

WGK 1 ♦ HS 34021300

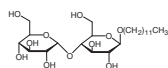
Storage temperature +2 °C to +8 °C

Non-ionic detergent; CMC 0.16-0.19 mM. Especially suitable for the activation of cytochrome C oxidase. Frequently used for the investigation of photosynthetic membranes.

Assay (from C) min. 99.0 %
 $[\alpha]_{20}^{\circ}C/D$ (c=1 in H_2O). +46 ° to +50 °

References:

1. Rosevaer, P. et al. (1980) *Biochemistry* **19**, 4108-15
2. Musatov, A. et al. (1990) *Biochem. Int.* **21**, 563-71
3. Dekker, J.P. et al. (1989) *FEBS Lett.* **254**, 150-4
4. Koenig, B. et al. (1989) *FEBS Lett.* **257**, 163-6



Cat.No.	Size
20780.01	100 mg
20780.02	500 mg
20780.03	1 g

Dodecylsulfate-Na-salt electrophoresis grade $C_{12}H_{25}O_4S-Na$ ♦ M_r 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

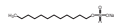
Ultrapure SDS, suitable for standard and high resolution electrophoresis techniques.

Assay (GC) min. 99.0 %
 A 1cm/10 % in water
 260 nm max. 0.1
 280 nm 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_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

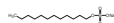
EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Assay (GC) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 1.5
 280 nm max. 1.0
 C_{10} - and C_{14} -sulfate (GC) max. 1 %

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_r 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

Assay (GC) min. 99.0 %

Cat.No.	Size
20783.01	250 g
20783.02	1 kg

Dodecylsulfate-Na-salt 2xcryst., analytical grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 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

Assay (GC) min. 99.0 %
 C_{10} - and C_{14} -sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water
 260 nm max. 0.2
 280 nm max. 0.08

Cat.No.	Size
20763.01	100 g
20763.02	500 g

Dodecylsulfate-Na-salt 2x cryst., molecular biology grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

WARNING

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

DNase/RNase not detected. Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.5 %
 A 1 cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.05

Cat.No.	Size
39574.01	100 g
39574.02	500 g

Dodecylsulfate-Na-salt 2x cryst., premium grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 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

Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.15
 280 nm max. 0.05

Cat.No.	Size
20770.01	100 g
20770.02	500 g

Dodecylsulfate-Na-salt in Pellets research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 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

Same quality as Cat. No. 20760 but pressed in small pellets thus avoiding the irritant dust of the powder form.

Assay (GC) min 99.0 %
 C_{10} and C_{14} -sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water:
 260 nm max. 1.5
 280 nm max. 1.0

Cat.No.	Size
20765.01	100 g
20765.02	250 g
20765.03	1 kg

DOWEX® Ion Exchangers

see Special Section, page 376

Doxorubicin-HCl

see 11010 Adriamycin HCl Solution, page 5, 286

DPN

see 30311 β-Nicotinamide adenine dinucleotide, page 72, 342

DTE

see 20697 Dithioerythritol, page 38, 147

DTNB

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 38

DTT

see 20710 Dithiothreitol, page 39, 147

E-64 research grade

(trans-Epoxy succinyl-L-Leucylamido-(4-Guanidino)butane; Epoxy[L-3-trans-Carboxy oxiran-2-Carbonyl]-L-Leu-Agmatin)

C₁₅H₂₇N₅O₅ ♦ M_r 357.4 ♦ CAS [66701-25-5]

HS 29241900

Storage temperature -15 °C to -25 °C

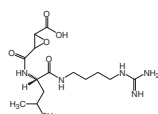
Inhibitor for papain and other cysteine (thiol) proteases. Effects on metastasis formation in mice (5).

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

E-64 d

(EST; L-3-trans-ethoxycarbonyloxirane-2-carbonyl)-L-leucine-(3-methylbutyl)amide; (2S,3S)-trans-epoxysuccinyl-L-leucylamido-3-methylbutane ethyl ester)

C₁₇H₃₀N₂O₅ ♦ M_r 342.4 ♦ CAS [88321-09-9]

HS 29241900

Storage temperature -15 °C to -25 °C

Membrane permeable inhibitor of lysosomal cysteine proteases (Cathepsin B/H/L and Calpain) analog of E-64 c.

Assay (HPLC)

min. 98.0 %

References:

1. Tamai, M. et al. (1986) J. Pharmacobio. Dyn. **9**, 672
2. Tamai, M. et al. (1987) Chem. Pharm. Bull. **35**, 1098
3. McGowan, E.B. et al. (1989) Biochem. Biophys. Res. Commun. **158**, 432
4. Incomata, M. et al. (1996) Arch. Biochem. Biophys. **328**, 129

Cat.No.	Size
21102.01	1 mg
21102.02	5 mg

Eastman Instant Adhesive 910

(Cyanoacrylic acid methyl ester)

CAS [137-05-3]



WARNING

H315-H319-H335 ♦ MAK/TRK 2 ml/m³; 9.2 mg/m³ ♦ EG-

Index 607-235-00-3 ♦ EINECS 205-275-2 ♦ WGK 2 ♦ HS 35069100

Storage temperature +2 °C to +8 °C

Cat.No.	Size
20832.03	20 g

Edamin S

see 48625 Peptone from lactalbumin, page 78, 305

EDTA

see 11278 Ethylenediamine tetraacetic acid, page 43, 147, 247, 320

EDTA-disodium

see 11280 Ethylenediamine tetraacetic acid-Na₂-salt, page 43, 138, 147, 320, 366

EGTA

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 43, 147

Egtazic acid

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 43, 147

Elastase from human neutrophils min. 10 U/mg lyophil.

(Leukocyte elastase)

EC 3.4.21.37 ♦ M_r 29 500 ♦ CAS [9004-06-2]



DANGER

H315-H319-H334-H335 ♦ EINECS 232-670-7 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Lyophilized from sodium acetate pH ca. 5 containing NaCl. Degrades connective tissue components and plasma proteins. Implicated in the development of lung emphysema, arthritis and inflammatory conditions.

Unit definition: 1 U releases 1 μmole 4-nitroanilide per minute from MeO-Suc-Ala-Ala-Pro-Val-4-nitroanilide at 25 °C, pH 8.0 (1).

References:

1. Castillo, M.J. et al. (1979) Anal. Biochem. **99**, 53-64
2. Barrett, A.J. (1981) Methods Enzymol. Vol. **80**, 581-8

Cat.No.	Size
20927.01	100 μg

Elastase from porcine pancreas min. 120 U/mg protein suspension

EC 3.4.21.36 ♦ M_r ca. 25 900

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

In 70 % saturated ammonium sulfate. For the degradation of proteins and peptides: hydrolyzes especially bonds adjacent to neutral amino acid residues.

25 mg correspond to approx. 3 - 4 ml; 100 mg correspond to approx. 11 - 15 ml.

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

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
20931.01	25 mg
20931.02	100 mg

Elastase from porcine pancreas min. 200 U/mg lyophil. salt-free

(Pancreatopeptidase E)

EC 3.4.21.36 ♦ M_r 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. Chromatographically purified (1).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

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
20929.01	10 mg
20929.02	25 mg

Ellman's reagent

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 38

■ Embedding Medium ERL-4221D

(Epoxy cyclohexylmethyl-3,4-epoxycyclohexylcarboxylate; Epoxy embedding medium; Spurr Embedding Medium)
 $C_{14}H_{20}O_4$ ♦ M_r 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
21041.01	100 ml
21041.02	250 ml
21041.03	1 L

■ Endoproteinase Glu-C (V8 proteinase), MS approved from *Staphylococcus aureus* lyophil.

3.4.21.19 ♦ CAS [66676-43-5]

HS 35079090

Storage temperature -15 °C to -25 °C *

Endoproteinase Glu-C (V8) is a serine endoproteinase isolated from *Staphylococcus aureus* V8.

Approved quality for use with in-gel digestion and mass spectrometric analysis.

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.

Due to its highly specific cleavage of peptides Glu-C is used in proteomics for peptide mapping and protein sequence work.

Cat.No.	Size
20986.01	2 x 25 µg

■ Eosin Y-Na-salt research grade

(Acid Red 87; Eosin Yellowish; Tetrabromo-fluorescein)

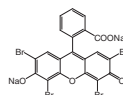
$C_{20}H_6Br_4O_5 \cdot Na_2$ ♦ M_r 691.9 ♦
 CAS [17372-87-1]

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



■ Epon 812

see 21045 Glycid ether 100, page 53, 361

■ EPON accelerator DMP-30

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 114, 361

■ EPON hardener DDSA

see 20755 2-Dodecenylsuccinic acid anhydride, page 39, 360

■ EPON hardener MNA

see 29452 Methylnadac anhydride, page 67, 361

■ Epoxy embedding medium

see 21041 Embedding Medium ERL-4221D, page 42, 360

■ 1,2-Epoxypropane

see 33715 Propylene oxide, page 84, 365

■ ERL-4206 hardener

see 30812 Nonenylsuccinic anhydride, page 73, 361

■ ERL-4206 plasticizer

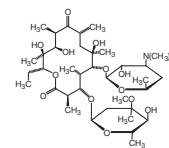
see 18247 D.E.R.® 736, page 33, 360

■ Erythromycin base research grade

$C_{37}H_{67}NO_{13}$ ♦ M_r 733.92 ♦ CAS [114-07-8]

EINECS 204-040-1 ♦ WGK 1 ♦ HS 29415000

Ph. Eur. Mixture of macrolide-glycoside antibiotics produced by a strain of *Streptomyces erythreus*, the main component being Erythromycin A. Broad-spectrum antibiotic. Inhibitor of protein biosynthesis (2,3): inhibits peptide elongation on the ribosome by binding close to the peptidyl transferase center and blocking the peptide exit tunnel in the large ribosomal subunit (4,5).



Assay (HPLC) 93.0 - 102.0 %
 (Sum of Erythromycin A, B, and C)

References:

1. Tanaka, K. et al. (1972) Mol. Genet. **114**, 9-30
2. Jagendorf, A.T. a. Michaels, A. (1990) Plant Science **71**, 137-45
3. Bogorad, L. (2003) Photosynth. Res. **76**, 13-33
4. Lovmar, M. et al. (2004) J. Biol. Chem. **279**, 53506-15
5. Lovmar, M. et al. (2006) J. Biol. Chem. **281**, 6742-50
6. Kohanski, M.A. et al. (2007) Cell **130**, 797-810

Cat.No.	Size
21208.02	5 g
21208.03	25 g

■ Ethanol denaturated 96 %

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
 EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC)	min. 96.0 %
Methyl ethyl ketone	1 %
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_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

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_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
 ♦ WGK 1L ♦ HS 22071000

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

See us in the Internet.

Go to www.serva.de

Ethanol undenatured absolute molecular biology grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
♦ WGK 1L ♦ HS 22071000

DNase/RNase not detected. Suitable for use in the precipitation of nucleic acids.

Assay (GC) 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 research grade

(1,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; 3,8-Diamino-5-ethyl-6-phenyl-phenanthridiniumbromide; Homidium bromide)



$C_{21}H_{20}N_3^+Br^-$ ♦ M_r 394.33 ♦
CAS [1239-45-8]

DANGER

H302-H330-H341 ♦ EG-Index 612-278-00-6 ♦ GGVSE/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦ EINECS 214-984-6 ♦ WGK 2 ♦ HS 29339980

Suitable for use in staining of DNA after electrophoresis. Also used as counterstain for cell nuclei in histological and cytological analysis.

Caution:

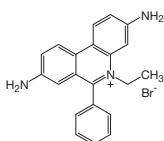
Ethidium bromide is a powerful mutagen and moderately toxic. Gloves should be worn when working with solutions that contain this dye. For decontamination of dilute ethidium bromide containing solutions follow the method from Lunn and Samsone (1). The adsorbent SERDOLIT™ PAD-I for this procedure is available under cat. no. 42442.

Assay (titr.) min. 98.0 %

References:

1. Lunn & Samsone (1987) Ethidium bromide: Destruction and decontamination of solutions. Anal. Biochem. **162**, 453

Cat.No.	Size
21238.01	1 g
21238.02	5 g



Ethidium bromide aqueous solution 1 % w/v



DANGER

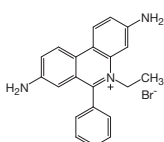
H330-H341 ♦ GGVSE/ADR 6.1 III UN2810 ♦

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 analytical grade

(Ethanediol; Glycol)

$C_2H_6O_2$ ♦ M_r 62.07 ♦ CAS [107-21-1]



WARNING

H302 ♦ MAK/TRK 10 ml/m³; 26 mg/m³ ♦ EG-Index 603-027-00-1 ♦
EINECS 203-473-3 ♦ WGK 1L ♦ HS 29053100

Assay (GC) min. 99.5 %

Cat.No.	Size
11285.02	1 L



Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid molecular biology grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)

$C_{14}H_{24}N_2O_{10}$ ♦ M_r 380.35 ♦ CAS [67-42-5]

EINECS 200-651-2 ♦ HS 29225000

DNase/RNase not detected. High selectivity for Ca^{2+} over Mg^{2+} .

Assay (titr.) min. 99.0 %

References:

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7

Cat.No.	Size
39762.01	5 g
39762.02	50 g

Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid analytical grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)

$C_{14}H_{24}N_2O_{10}$ ♦ M_r 380.35 ♦ CAS [67-42-5]

EINECS 200-651-2 ♦ HS 29225000

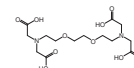
High selectivity for Ca^{2+} over Mg^{2+} .

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)

$C_{10}H_{16}N_2O_8$ ♦ M_r 292.3 ♦ CAS [60-00-4]



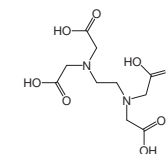
WARNING

H319 ♦ EG-Index 607-429-00-8 ♦

EINECS 200-449-4 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size
11278.01	100 g
11278.02	1 kg



Ethylenediamine tetraacetic acid- Na_2 -salt analytical grade

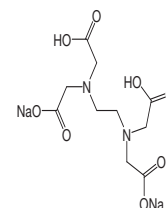
(Versene disodium; EDTA-disodium)

$C_{10}H_{14}N_2O_8 \cdot Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size
11280.01	100 g
11280.02	1 kg
11280.03	5 kg



Ethylenediamine tetraacetic acid- Na_2 -salt electrophoresis grade

(Versene disodium; EDTA-disodium)

$C_{10}H_{14}N_2O_8 \cdot Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ HS 29212900

EDTA, a cation chelator, is used in DNA electrophoresis buffers to inhibit metal-requiring nucleases. Application tested quality for electrophoresis.

Assay (titr.) min. 99.0 %

Cat.No.	Size
11281.01	100 g
11281.02	250 g
11281.03	1 kg

■ **Ethylenediamine tetraacetic acid- Na_2 -salt**

molecular biology grade

(Versene disodium; EDTA-disodium)

 $\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8 \cdot \text{Na}_2 \cdot 2\text{H}_2\text{O}$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

DNase/RNase not detected.

Assay (titr.)

min. 99.0 %

Cat.No.	Size
39760.01	250 g

■ **Ethylenediamine tetraacetic acid- Na_2 -salt solution,**

0.5 M molecular biology grade

WGK 2 ♦ HS 38220000

DNase/RNase not detected. pH (20 °C): 8.0 ± 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/lpH 8.0 ± 0.1

Cat.No.	Size
39761.01	100 ml
39761.02	500 ml

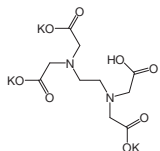
■ **Ethylenediamine tetraacetic acid- K_3 -salt analytical grade**(EDTA- K_3 -salt; Versene- K_3 -salt) $\text{C}_{10}\text{H}_{13}\text{N}_2\text{O}_8 \cdot \text{K}_3 \cdot 2\text{H}_2\text{O}$ ♦ M_r 442.55 ♦ CAS [65501-24-8]**WARNING**

H319-H412 ♦ EINECS 241-543-5 ♦ WGK 2L ♦

HS 29212900

Assay (titr.)

min 99.0 %



Cat.No.	Size
11277.02	100 g

■ **N-Ethylmaleimide research grade**

(NEM)

 $\text{C}_6\text{H}_7\text{NO}_2$ ♦ M_r 125.13 ♦ CAS [128-53-0]**DANGER**

H300-H311-H314-H317 ♦ GGVSE/ADR 6.1 II UN2928 ♦ IATA 6.1 II UN2928 ♦

EINECS 204-892-4 ♦ WGK 3L ♦ HS 29251995

Storage temperature +2 °C to +8 °C

SH-reagent.

Purity (GC)

min. 98.0 %

MP

43 - 46 °C

**References:**1. Riordan, J. & Vallee, B. (1967) Methods Enzymol. **11**, 541-8

Cat.No.	Size
11331.02	5 g
11331.03	25 g

■ **Ethylmercury thiosalicylic acid- Na -salt research grade**

(Merthiolate; Thimerosal; Thiomersal)

 $\text{C}_9\text{H}_9\text{HgO}_2\text{S} \cdot \text{Na}$ ♦ M_r 404.8 ♦ CAS [54-64-8]**DANGER**

H301-H310-H330-H373-H410

♦ MAK/TRK 0.01 ml/m³, 0.1 mg/m³ calculated

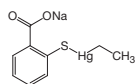
as mercury ♦ EG-Index 080-004-00-7 ♦ GGVSE/ADR 6.1 III UN2025 ♦

IATA 6.1 III UN2025 ♦ EINECS 200-210-4 ♦ WGK 3L ♦ HS 28521000

USP, Ph. Eur.

Assay (titr.)

97.0 - 101.0 %



Cat.No.	Size
11340.01	10 g
11340.02	25 g
11340.03	100 g

■ **FAD- Na_2** see 21490 Flavin adenine dinucleotide- Na -salt, page 45, 320, 342■ **Fast Green FCF**

(Food Green 3)

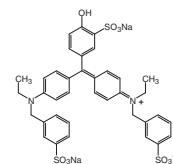
 $\text{C}_{37}\text{H}_{34}\text{N}_2\text{O}_{10}\text{S}_3 \cdot \text{Na}_2$ ♦ M_r 808.9 ♦

CAS [2353-45-9]

**WARNING**

H341 ♦ EINECS 219-091-5 ♦ WGK 2L ♦

HS 32041200



Similar to Lissamine Green SF (C.I.42095). Useful for quantitative evaluation of polyacrylamide gel electrophoretic separations (1, 2, 3).

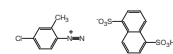
 λ_{max} 0.0005 % in water 624 nm $\pm$ 3**References:**

- Gorovsky, M.A. et al. (1970) Anal. Biochem. **35**, 359-370
- Bartolini, M.B. et al. (1976) Anal. Biochem. **71**, 6-13
- Allen, R.E. et al. (1980) Anal. Biochem. **104**, 494-8

Cat.No.	Size
21295.01	5 g
21295.02	25 g

■ **Fast Red TR-salt**

(Azoic Diazo Component 11; Diazotized 2-amino-5-chlorotoluene-1,5-naphthalene disulfonate; Echtrotsalz TR)

 $\text{C}_{17}\text{H}_6\text{ClN}_2 \cdot \text{C}_{10}\text{H}_7\text{O}_6\text{S}_2$ ♦ M_r 440.9 ♦

CAS [51503-28-7]

DANGER

H302-H315-H319-H335-H350 ♦ EINECS 257-247-4 ♦ WGK 2L ♦

HS 32041600

Coupling with 1-naphthol.

References:1. Gundlach, E. & Mülhausen, B. (1980) J. Clin. Chem. Clin. Biochem. **18**, 603-10

Cat.No.	Size
21317.01	50 g

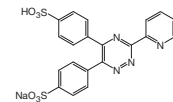
■ **Ferrozine® analytical grade**

(PDT disulfonate; 3-[2-Pyridyl]-5,6-diphenyl-1,2,4-triazine-4,4'-disulfonic acid Na-salt)

 $\text{C}_{20}\text{H}_{13}\text{N}_4\text{O}_6\text{S}_2 \cdot \text{Na}$ ♦ M_r 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:

- Stokey, L.L. (1970) Anal. Chem. **42**, 779-81
- Carter, P. (1971) Anal. Biochem. **40**, 450-58
- Butts, W.C. & Mulvill, H.J. (1975) Clin. Chem. **21**, 1493-7

Cat.No.	Size
21326.01	1 g
21326.02	5 g

■ **Fibroblast growth factor, basic (human) recombinant**

sterile

(bFGF)

HS 29379000

Storage temperature -15 °C to -25 °C

Produced in *E. coli* and purified by affinity chromatography (1).

Reconstitute in PBS (sterile filtered) to a minimum of 0.1 mg/ml.

Concentration required for 0.5 maximum stimulation of bovine aortic endothelial cells (BAE cells): 0.3 ng/ml cell culture of melanocytes (2).

References:

- Gospodarowicz, D. et al. (1986) Cell Differentiation **19**, 1-17
- Halaban, R. et al. (1988) J. Cell Biol. **107**, 1611-9

Cat.No.	Size
47276.01	10 µg

■ Fibronectin (human) lyophil. analytical grade, sterile

(HFN)

M_r 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). Lyophilized from a solution of 0.05 M Tris-HCl, 0.1 M NaCl, pH 7.5 after membrane filtration (0.2 microns). Reconstitute with sterile filtered distilled water. Avoid repeated freezing and thawing.

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_r 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
21373.01	10 g
21373.02	50 g

■ FICOLL™ 400 molecular biology grade

M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

DNase/RNase not detected. Suitable for use in hybridization buffers like Denhardt's Solution (cat. no. 39603).

FICOLL = trademark of GE Healthcare companies.

Cat.No.	Size
39763.01	10 g
39763.02	50 g

■ Flavin adenine dinucleotide-Na-salt pure

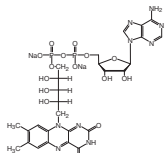
(FAD-Na₂)C₂₇H₃₁N₉O₁₆P₂Na₂·2H₂O ♦ M_r 865.56 ♦

CAS [84366-81-4]

EINECS 282-733-8 ♦ WGK 1 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Assay (photometric, dried subst.) min. 95.0 %
pH 1 % in water 6.2 ± 0.5
Water max. 10.0 %



Cat.No.	Size
21490.02	100 mg

■ Float-A-Lyzer® G2

see Spectra/Por® Float-A-Lyzer®, page 176

■ Fluorescamine

see 21551 Fluram®, page 46

■ Fluorescein diacetate 5xcryst. research grade

(Diacetylfluorescein)

C₂₄H₁₆O₇ ♦ M_r 416.4 ♦ CAS [596-09-8]

EINECS 209-877-6 ♦ WGK 1 ♦ HS 29329900

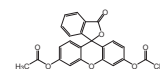
Storage temperature +2 °C to +8 °C

Special quality for the study of cell membranes (1). For histochemical esterase detection (2). Measurement of mitochondrial pH-gradients in isolated hepatocytes (3). Use as fluorescent viability stain (4 - 6).

MP 200 - 205 °C

References:

1. Rotman, B. & Papermaster, B.W. (1963) Proc. Natl. Acad. Sci. USA **50**, 134-41
2. Guibault, G.G. & Kramer, D.N. (1964) Anal. Chem. **36**, 409-12
3. Thomas, P.J. et al. (1991) Arch. Biochem. Biophys. **288**, 250
4. Gray, D.W.R. & Morris, P.J. (1987) Stain Technol. **62**, 373
5. Jamagin, J.L. & Luchsinger, D.W. (1980) Stain Technol. **55**, 253
6. Ross, D.D. et al. (1989) Cancer Res. **49**, 3776



Cat.No.	Size
21575.02	5 g

■ Fluorescence labelling

see 43401 SERVA Lightning Red for 1D SDS PAGE, page 95, 239

■ Fluorescence labelling

see 43400 SERVA HPE™ Lightning Red, page 92, 239

■ Fluorescence staining

see 35092 SERVA ProteinStain Fluo-Y, page 96, 240

■ Fluorescence staining

see 43386 SERVA Purple, page 96, 240

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 25 cm x 3 m

HS 39219090

Fluorobind Membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size
42571.01	1 roll

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 20 cm x 20 cm

HS 39219090

Fluorobind Membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size
42572.01	10 sheets

■ 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:

1. Gurr, E. (1951) J.R. Nav. Med. Serv. **37**, 133-40
2. 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

■ **Fluram®** analytical grade

(Fluorescamine)

 $C_{17}H_{10}O_4$ ♦ M_r 278.26 ♦ CAS [38183-12-9]

EINECS 253-814-5 ♦ HS 29329900

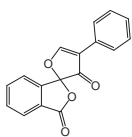
For fluorimetric determination of primary amines and amino acids (1). Spray reagent for TLC (2). Differential labeling of normal and transformed cells (3).

MP 155 - 158 °C

Fluram = TM of Hoffmann La Roche Inc.

References:

1. Udenfriend, S. et al. (1972) Science **178**, 871-2
2. Felix, A. & Jimenez, M.H. (1974) J. Chromatogr. **89**, 361-4
3. Parry, G. et al. (1982) Cytometry **3**, 97-103



Cat.No.	Size
21551.01	100 mg
21551.02	500 mg

■ **FocusGel 3-10** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10.

Cat.No.	Size
43327.01	5 gels

■ **FocusGel 3-10 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10, 24 slots for 25 µl.

Cat.No.	Size
43335.01	5 gels

■ **FocusGel 3-7** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-7.

Cat.No.	Size
43328.01	5 gels

■ **FocusGel 3-7 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use gels for IEF, pH 3-7, 24 slots for 5 µl.

Cat.No.	Size
43387.01	5 gels

■ **FocusGel 4-5 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-5, 24 slots for 25 µl.

Cat.No.	Size
43332.01	5 gels

■ **FocusGel 4-6 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-6, 24 slots for 25 µl.

Cat.No.	Size
43334.01	5 gels

■ **FocusGel 6-11 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 24 slots for 25 µl.

Cat.No.	Size
43329.01	5 gels

■ **FocusGel 6-11 40S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 40 slots for 12 µl.

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 gels for IEF, pH 6-9, 24 slots for 25 µl.

Cat.No.	Size
43330.01	5 gels

■ **Folic acid** cryst. research grade

(Pteroylmonoglutamic acid; Folsäure)

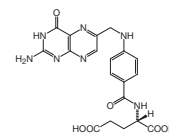
 $C_{19}H_{19}N_7O_6$ ♦ M_r 441.4 ♦ CAS [59-30-3]

EINECS 200-419-0 ♦ WGK 1L ♦ HS 29362900

Ph. Eur.

Assay (HPLC)

96.0 - 102.0 %



Cat.No.	Size
21700.02	25 g
21700.03	100 g

■ **Food Green 3**

see 21295 Fast Green FCF, page 44, 241, 371

■ **Forskolin** research grade

(β-Acetoxy-8,13-epoxy-1α, 6β, 9α-trihydroxyabdo-14-en-11-one)

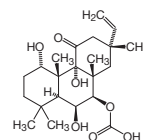
 $C_{22}H_{34}O_7$ ♦ M_r 410.5 ♦ CAS [66575-29-9]

EINECS 266-410-9 ♦ WGK 1 ♦ HS 29145000

Colorless needles. Easily soluble in polar solvents. Diterpene from *Coleus forskohlii*, with cardiovascular effect (dose-dependent) in animals (hyper/hypotensive, pos. inotrope, vasodilator). Activates adenylate cyclase (2, 3)

Assay (HPLC, TLC)

min. 97.0 %



References:

1. Seamon, K.B. & Daly, J.W. (1983) Trends Pharmacol. Sci. **4**, 120-3
2. Huang, R. et al. (1982) J. Cyclic Nucleotide Research **8**, 385
3. Laurenza, A. et al. (1989) Trends Pharmacol. Sci. **10**, 442-7

Cat.No.	Size
21780.01	1 mg
21780.02	5 mg

■ **D-Fructose** research grade

(Levulose)

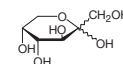
 $C_6H_{12}O_6$ ♦ M_r 180.2 ♦ CAS [57-48-7]

EINECS 200-333-3 ♦ WGK 1 ♦ HS 17025000

Ph. Eur.

[α] 20 °C/D (c=10 in water)

-93.5 to -91.0 °C



Cat.No.	Size
21830.01	250 g
21830.02	1 kg

■ **D-Fructose-1,6-biphosphate-Na₃-salt** research grade

(Harden-Young-ester)

 $C_6H_{11}O_{12}P_2Na_3 \cdot 8H_2O$ ♦ M_r 550.19 ♦ CAS [81028-91-3]

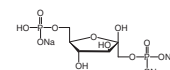
EINECS 253-778-0 ♦ WGK 1 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

Free of monophosphate. Suitable as substrate for Aldolase.

Assay (titr.)

min. 98.0 %



Cat.No.	Size
21860.01	1 g

■ **Fuchsin acid** pure

(Acid Violet 19; Rubin S; Fuchsin trisulfonate)

C.I. 42685 ♦ $C_{20}H_{17}N_3Na_2O_9S_3$ ♦ M_r 585.5 ♦

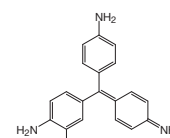
CAS [3244-88-0]

WGK 2L ♦ HS 32041200

Indicator pH 12-14.

λmax. 0.001 % in H₂O

546 ± 4 nm



Cat.No.	Size
34597.01	25 g
34597.02	100 g

Fuchsin basic pure

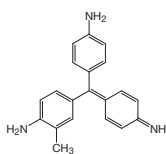
(Basic Violet 14)
C.I.42510 ♦ CAS [632-99-5]



DANGER
H350 ♦ Carc. 1B ♦ EINECS 211-189-6 ♦
HS 32041300

Mixture of homologues of parafuchsin.

$\lambda_{\max}$ 0.0001 % in 50 % ethanol 552 ± 4 nm



Cat.No.	Size
21916.02	25 g
21916.03	100 g

Fungicidin

see 29870 Nystatin min. 4 400 units/mg, page 74, 282

Fungizone®

see 47982 Amphotericin B solution, page 13, 281

6-Furfurylaminopurine

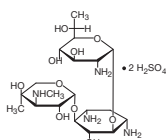
see 27190 Kinetin, page 61, 310

G 418 sulfate

(Geneticin®)
 $C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$ ♦ M_r 692.7 ♦ CAS [108321-42-2]



WARNING
H302-H332-H361d ♦ 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:

1. Southern, P.J. & Berg, P. (1982) J. Mol. Appl. Genetics **1**, 327-41
2. Bar-Nun, S. et al. (1983) Biochim. Biophys. Acta. **741**, 123-7
3. Hadfield, C. et al. (1990) Curr. Genet. **18**, 303-13
4. Wang, X. et al. (1996) Biotechnol. Bioeng. **49**, 45-51
5. Kunik, T. et al. (2001) PNAS **98**, 1871-6
6. D'Artagnan Villalba, J. et al. (2007) Microbiology **153**, 3852-63
7. Gietz, R.D. a. Schiestl, R.H. (2007) Nature Protocols **2**, 31-4

Cat.No.	Size
49418.02	250 mg
49418.03	1 g
49418.04	10 g

G 418 solution sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

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).

Cat.No.	Size
47995.01	20 ml
47995.02	100 ml

D-Galactose research grade

$C_6H_{12}O_6$ ♦ M_r 180.16 ♦ CAS [59-23-4]

EINECS 200-416-4 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC)

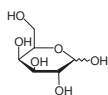
min. 98.0 %

MP

165 - 172 °C

$[\alpha]$ 20 °C/D (c=10 in water)

+ 78 ° to + 81.5 °



Cat.No.	Size
22020.01	100 g
22020.02	500 g

GE 100

see 21045 Glycid ether 100, page 53, 361

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 = registered 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 registered 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™ for Agarose** Size: 265 mm x 150 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
42955.01	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 registered trademark of SERVA.

Cat.No.	Size
42957.01	36 sheets

■ **GEL-FIX™ Covers** Size: 260 mm x 203 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size
42971.01	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

■ **2D Gel DALTsix NF 12.5 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size
43313.01	1 kit

■ **2D Gel DALTsix NF 10 -15 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size
43314.01	1 kit

■ **2D Gel DALTsix 12.5 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size
43317.01	1 kit

■ **2D Gel DALTsix 10 -15 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size
43318.01	1 kit

■ **2D Gel DALTwelve NF 12.5% Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size
43315.01	1 kit

■ **2D Gel DALTwelve NF 10 -15 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support

Cat.No.	Size
43316.01	1 kit

■ **2D Gel DALTwelve 12.5 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size
43319.01	1 kit

■ **2D Gel DALTwelve 10 -15 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size
43320.01	1 kit

■ **Gelatin**

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Ph. Eur. 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

Volume 0.7 cm³
Length 21.8 mm
Diameter 7.7 mm

Cat.No.	Size
43520.02	500 pieces

■ Gelatin, liquid

M_r 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
22156.02	500 ml

■ Geldanamycin

C₂₉H₄₀N₂O₉ ♦ M_r 560.64 ♦ CAS [30562-34-6]

HS 29419000

Storage temperature -15 °C to -25 °C

Potent antitumor antibiotic isolated from *Streptomyces hygroscopicus* var. *Geldanus* with macrolide structure (Benzochinone Ansamycin). Inhibitor of proto-oncogenic protein kinases. A potent inhibitor of the nuclear hormone receptor family. Binds to and inhibits heat shock protein 90 (Hsp90) which is essential for the conformation, stability, and function of many target proteins involved in cell signaling, cell proliferation, gene expression, apoptosis, angiogenesis, and oncogenesis.

Purity (HPLC, TLC) min. 98.0 %

References:

- Ochel, H.-J. et al. (2001) Cell Stress Chaperones **6**, 105-12
- Miyata, Y. (2005) Curr. Pharm. Des. **11**, 1131-8
- Xiao Ming Yu et al. (2005) J. Am. Chem. Soc. **127**, 12778-9
- Sharp, S. a. Workman, P. (2006) Adv. Cancer Res. **95**, 323-48
- Hosoi, T. et al. (2007) Cell Research **17**, 184-6.

Cat.No.	Size
22165.02	1 mg
22165.03	5 mg

■ Gelfiltration Columns

see Chapter Sample Preparation, page 152

■ Gelrite®

(Agar Substitute; K9A-40; Gellan-Gum)
CAS [71010-52-1]

EINECS 275-117-5 ♦ WGK 1 ♦ HS 39131000

Polysaccharide produced by bacteria. Useful alternative to agar for the *in vitro* culture of many plants. Yields very clear gels. Constant quality from lot to lot.

Gelrite = registered trademark of Merck & Co., Inc. USA

References:

- Shungu, D. et al. (1983) Appl. Environm. Microbiol. **46**, 840-5
- 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, 284

■ 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.

Cat.No.	Size
47991.01	20 ml
47991.02	100 ml

■ Gentamycin sulfate research grade

(Gentamycin sulfate)

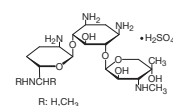
CAS [1405-41-0]



DANGER

H317-H334-H361 ♦ EINECS 215-778-9 ♦

WGK 1 ♦ HS 29419000



Ph. Eur. Min. 590 U/mg. Aminoglycoside antibiotic complex from *Micromonospora purpurea*.

Consists of closely related compounds: gentamycin C₁, C_{1a}, C₂, C_{2a} and C_{2b}; min. 590 mg gentamycin base/g. 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:

- Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
- Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotics chemistry Vol. I. Chichester: Horwood, pp. 1-90
- Eichholtz, D.A. et al. (1979) Plant Physiol. **63**, Abstr. 753
- Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
- Nakamura, T. et al. (1991) J. Biol. Chem. **266**, 19432-7
- Stubbs, A.C. et al. (2001) Nature Medicine **7**, 625-9
- Manevich, Y. et al. (2002) PNAS **99**, 11599-604
- 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, 370

■ Gibberellic acid cryst. pract.

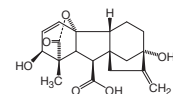
(Gibberellin-A₃)C₁₉H₂₂O₆ ♦ M_r 346.4 ♦ CAS [77-06-5]

HS 29322985

Plant growth factor from *Fusarium moniliformis*.

Assay (HPLC)

min. 90.0 %



Cat.No.	Size
22278.01	1 g
22278.02	5 g
22278.03	25 g

■ Glass Plates

HS 70031990

Supports for cover. Size: 245 x 128 x 3 mm.

Cat.No.	Size
42953.01	4 pieces

■ Glass Plates

HS 70031990

Supports for gel sheets. Size: 265 x 128 x 3 mm.

Cat.No.	Size
42952.01	4 pieces

■ Glass wool, silanized research grade



WARNING

H315-H319-H335 ♦ HS 70199099

A very soft material for plugging columns in gas and liquid chromatography.

Cat.No.	Size
22367.01	10 g
22367.03	50 g

■ **γ-Globulin bovine**M_r 150000 ♦ CAS [9007-83-4]

EINECS 232-706-1 ♦ WGK 1 ♦ 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

■ **D-Glucitol**

see 39785 D-Sorbitol, page 107, 301

■ **4-O-β-D-Glucopyranosyl-D-glucose**

see 16400 D-Cellobiose, page 23

■ **α-D-Glucopyranosyl-α-D-glucopyranoside**

see 36770 D-Trehalose, page 113

■ **2-O-β-D-Glucopyranosyl-α-D-glucose**

see 35208 α-Sophorose, page 107

■ **α-D-Glucose anhydrous analytical grade**

(Dextrose; α-D-Glucopyranose)

C₆H₁₂O₆ ♦ M_r 180.16 ♦ CAS [50-99-7]

EINECS 200-075-1 ♦ WGK 1L ♦ 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
22700.03	5 kg

■ **Glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides* ca. 600 U/mg protein suspension**(D-Glucose-6-phosphate: NAD(P)⁺1-oxidoreductase)EC 1.1.1.49 ♦ M_r ca. 104 000

DANGER
H334 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

The enzyme is useful for the determination of D-glucose (1), D-fructose (2) and D-sorbitol (3). In 70 % saturated ammonium sulfate. 10 mg correspond to approx. 1 ml.

Unit definition: See cat. no. 22820, with NAD⁺ as coenzyme.

Extraneous activities: creatine phosphokinase (CPK), 6-phosphogluconate dehydrogenase (6-PGDH), phosphoglucose isomerase (PGI), phosphoglucomutase (PGM) each <0.01 %, hexokinase (HK) <0.05 %.

References:

- Kunst, A. et al. (1984) Methods in Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 6, p.163-72
- Beutler, H.-O. (1984) loc. cit. p. 321-7
- Beutler, H.-O. (1984) loc. cit. p. 356-62

Cat.No.	Size
22822.01	10 mg

■ **Glucose-6-phosphate dehydrogenase from yeast ca. 140 U/mg protein suspension**

(G6P-DH)

EC 1.1.1.49 ♦ M_r ca. 102 000 ♦ CAS [9001-40-5]

EINECS 232-602-6 ♦ 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, 10 mg correspond to approx. 2 ml.

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose-6-phosphate per minute at 25 °C, pH 7.8 in the presence of NADP⁺ (equivalent to the reduction of 1 μmol NADP⁺ per minute) (1).

Extraneous activities: 6-PGDH, PGIU each 0.01 %; hexokinase max. 0.02 %; glutathione reductase max. 0.05 %; PGI max. 0.002 %; creatine kinase max. 0.001 %.

References:

- Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. Vol. 2, p. 202-3

Cat.No.	Size
22820.01	1 mg
22820.02	10 mg

■ **D-Glucose-6-phosphate: NAD(P)⁺1-oxidoreductase**

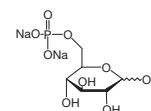
see 22822 Glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides* ca. 600 U/mg protein, page 50, 334

■ **α-D-Glucose-6-phosphate-Na₂-salt analytical grade**C₆H₁₁O₉P·Na₂ ♦ M_r 304.2 (anhydrous) ♦ CAS [3671-99-6]

EINECS 222-938-1 ♦ WGK 1 ♦ HS 29199000

Storage temperature -15 °C to -25 °C

Assay (enzymat.) min. 98.0 %
Water (K.F.) 8.5 - 12.5 %



Cat.No.	Size
22799.02	1 g
22799.03	5 g

■ **α-D-Glucose monohydrate analytical grade**

(Dextrose)

C₆H₁₂O₆·H₂O ♦ M_r 198.2 ♦ CAS [5996-10-1]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Ph. Eur.

[α] 20 °C/D +52.5° to +53.3°
Water (K.F.) 7.0 - 9.5 %
Heavy metals (Pb) max. 0.5 ppm



Cat.No.	Size
22720.01	1 kg
22720.02	10 kg

■ **Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.**EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER
H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090
Storage temperature -15 °C to -25 °C *

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (2).

References:

- Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
- Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. Vol. 6, 178-85
- Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) Vol. **IX**, 82-7
- O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-321

Cat.No.	Size
22739.02	500 mg

Enzymology:
see special chapter at p. 327

Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.

(GOD)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ 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 μmole 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:**

- Kunst, A. et al. (1984) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 6, p. 178-85
- Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
- Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
- O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size
22778.01	100 mg
22778.02	500 mg

Glucose oxidase from *Aspergillus niger* min. 200 U/mg lyophil. (Low Catalase)

(GOD; β-D-glucose: oxygen 1-oxidoreductase)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Ca. 350 U/mg protein

Application: Suitable for biosensor applications.**Structure:** A dimeric enzyme consisting of two identical polypeptides of approx. 80 kD which are disulphide-linked.

Each subunit contains 1 mole of FAD. The enzyme is glycosylated, containing approximately 12 % carbohydrate.

Isoelectric point: pH 4.6**pH optimum:** pH 5.5 with broad range 4 - 7**Inhibitors:** p-chloromercuribenzoate, heavy metal ions, hydroxylamine, hydrazine, sodium bisulphite.**Unit definition:** 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine.**Extraneous activities:** Amylase, maltase and invertase less than 0.05 % (2).**Catalase:** less than 0.01 U/mg material**GOD/catalase:** min. 25 000**References:**

- Tsuge, H. & Mitsuda, H. (1973) J. Biochem. **73**, 199-206
- Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. vol. 6, 178-85
- Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
- O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size
22780.01	100 mg
22780.02	500 mg

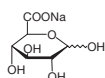
D-Glucuronic acid-Na-salt research grade

(Sodium glucuronate)

C₆H₉O₇·Na·H₂O ♦ M_r 234.1 ♦ CAS [14984-34-0]

EINECS 239-065-7 ♦ WGK 1 ♦ HS 29181998

Assay (titr.) min. 99.0 %



Cat.No.	Size
22890.02	50 g

Glutamate dehydrogenase from bovine liver ca. 100 U/mg protein solution

(L-Glutamate: NAD(P)⁺ oxidoreductase (deaminating))EC 1.4.1.3 ♦ M_r ca. 350 000

DANGER

H334 ♦ WGK 1 ♦ 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 μmole 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 μmole 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 μmole per unit.**References:**

- Schmidt, E. & F.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. Vol. 3, p. 216-27
- 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 cell culture grade

(L-2-Aminoglutaric acid; Glu)

C₅H₉NO₄ ♦ M_r 147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size
47205.01	250 g

L-Glutamic acid research grade

(L-2-Aminoglutaric acid; Glu)

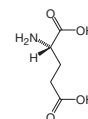
C₅H₉NO₄ ♦ M_r 147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ WGK 1 ♦ HS 29224200

Ph. Eur.

Assay (titr.)	98.5 - 100.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size
23000.01	250 g



L-Glutamine analytical grade

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)

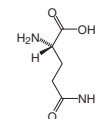
C₅H₁₀N₂O₃ ♦ M_r 146.2 ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ WGK 1L ♦ HS 29224985

USP

Assay (titr.)	99.0 - 101.0 %
Heavy metals (Pb)	max. 5 ppm.

Cat.No.	Size
22942.02	100 g
22942.03	250 g
22942.04	1 kg



■ **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	≤ 6.0 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

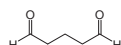
Cat.No.	Size
47204.01	100 g
47204.02	250 g
47204.03	1 kg

■ **Glutaraldehyde 25 % solution in water**

for electron microscopy, standard grade

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13 ♦ CAS [111-30-8]



ANGER
 H302-H314-H317-H331-H334-H335-H4
 00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/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)	1.3720 - 1.3735
Purification index (A235/A280, 1 % in water)	max. 5.0

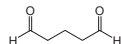
Cat.No.	Size
23115.01	250 ml
23115.03	2,5 L

■ **Glutaraldehyde 25 % solution in water**

for electron microscopy, high purity

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13



ANGER
 H302-H314-H317-H331-H334-H335-H4
 00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/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)	1.3712 - 1.3728
Purification index (A235/A280, 1 % in water)	max. 0.5

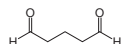
Cat.No.	Size
23114.01	25 ml
23114.02	10 x 5 ml

■ **Glutaraldehyde 50 % solution in water**

for electron microscopy

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13



ANGER
 H301-H314-H317-H331-H334-H335-H4
 00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/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 52, 363

■ **Glutathione Agarose Resin**

see 42172 Glutathione Agarose Resin, page 132

■ **L-Glutathione (oxidized form)** cryst. research grade

(GSSG)

$C_{20}H_{32}N_2O_{12}S_2$ ♦ M_r 612.64 ♦ CAS [27025-41-8]

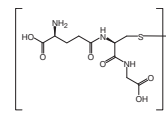
EINECS 248-170-7 ♦ WGK 1 ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (HPLC)	min. 98.0 %
[α] 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
23130.03	25 g

■ **L-Glutathione (reduced form)** cryst. research grade

(GSH; γ-L-Glutamyl-L-cysteinylglycine)

$C_{10}H_{17}N_3O_6S$ ♦ M_r 307.3 ♦ CAS [70-18-8]

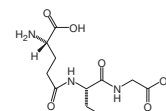
EINECS 200-725-4 ♦ WGK 2L ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (CE)	min. 97.5 %
MP	182 - 192 °C
[α] 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

■ **Glycerin**

see 23176 Glycerol from plant, page 52, 148, 247, 362

■ **Glycerol-albumen** pract.

WGK 1 ♦ HS 38220000

Glycerol-egg albumin 1:1. Mounting medium for microscopy; contains
 thymol as preservative.

Cat.No.	Size
20918.03	250 ml

■ **Glycerol from plant**

(Glycerin)

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Ph. Eur.

Assay (titr.)	min. 99.5 %
Heavy metals (Pb)	max. 5 ppm
Refractive index	1.470 - 1.475



Cat.No.	Size
23176.01	1 L

■ **Glycerol from plant 87 %**

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

HS 29054500

Refractive index 1.449 - 1.455

Cat.No.	Size
23177.01	1 L

■ **Glycerol from plant 87 % molecular biology grade**

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

HS 29054500

DNase/RNase not detected.

Refractive index 1.449 - 1.455

Cat.No.	Size
39788.01	1 L

■ **Glycerol gelatin** for microscopy

DANGER
H314-H341 ♦ WGK 1 ♦ HS 38220000

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 1.46 – 1.48

Cat.No.	Size
23311.01	50 ml

■ **Glycerol gelatin after Kisser** phenol-free

HS 38220000

Aqueous slide mounting medium for microscopy, especially suitable for preparation of pollen. The recipe is according to the well-known Kisser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative.

Contains ca. 40 % glycerol and ca. 13 % gelatin.

Refractive index 1.46 – 1.48

Cat.No.	Size
23312.01	15 ml

■ **2-Glycerolphosphate-Na₂-salt**

(Sodium-β-glycerophosphate)

C₃H₇O₆P·Na₂·5H₂O ♦ M_r 306.1 ♦ CAS [13408-09-8]

EINECS 212-464-3 ♦ WGK 1 ♦ HS 29199000

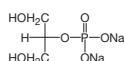
Storage temperature +2 °C to +8 °C

Optically inactive. Substrate for assay phosphatases. Inhibitor of serine and threonine phosphatase.

Assay (titr.) min. 99.0 %

References:

1. Heppel, L.A. (1955) Methods. Enzymol. **2**, 530-3



Cat.No.	Size
23330.02	100 g

■ **Glycid ether 100** for electron microscopy

(1,2,3-Propanetriol glycidyl ether; GE 100; Epon 812)

M_r average 306 ♦ CAS [90529-77-4]



WARNING
H315-H319 ♦ 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** cell culture grade

C₂H₅NO₂ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Loss on drying max. 0.2 %
Chloride (Cl) max. 70 ppm
Sulfate (SO₄) max. 65 ppm
Heavy metals (as Pb) max. 10 ppm

Cat.No.	Size
47206.01	250 g

■ **Glycine** electrophoresis grade

C₂H₅NO₂ ♦ M_r 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

(Aminoacetic acid; Glycocoli)

C₂H₅NO₂ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

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

■ **Glycine** premium grade

(Aminoacetic acid; Glycocoli)

C₂H₅NO₂ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
23395.01	500 g
23395.02	1 kg
23395.03	5 kg

■ **Glycocoli**

see 23395 Glycine, page 53, 247, 355

■ **Glycogen from oyster** research grade

(C₆H₁₀O₅)_n ♦ CAS [9005-79-2]

EINECS 232-683-8 ♦ WGK - ♦ HS 39139000

Storage temperature +2 °C to +8 °C

Substrate for glycogen phosphorylase (EC 2.4.1.1).

References:

1. Sutherland, E.W. (1955) Methods Enzymol. **1**, 215-22

Cat.No.	Size
23550.02	5 g
23550.03	25 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

■ **Glycol**

see 11285 Ethylene glycol, page 43

■ **Grace's Insect powder medium**

HS 38210000

Storage temperature +2 °C to +8 °C

Without sodium bicarbonate, with calcium chloride, with L-glutamine.

Supplements required:

Penicillin G-K-salt 50 U/ml
(cat. no. 31749)*
Streptomycin sulfate 0.1 mg/ml
(cat. no. 35500)

* Original formulation lists Penicillin G-Na-salt

References:

1. Grace, T.D.C. (1962) Nature **195**, 788-9
2. Yunker, C.E. et al. (1967) Science **155**, 1565-6

Cat.No.	Size
47308.04	10 L

■ **Gramicidin research grade**

(Gramicidin D)

M_r ca. 2000 ♦ CAS [1405-97-6]

EINECS 215-790-4 ♦ WGK - ♦ HS 29419000

Ph. Eur. Polypeptide antibiotic from *Bacillus brevis* (Dubos). Mixture of several components. Main component: gramicidin A1, others: gramicidins A2, B1, C1 and C2. Antibiotic against grampositive bacteria.
Channel forming antibiotic: 2 molecules of gramicidin form a channel through the cell membrane which is specific for monovalent cations esp. for potassium. Divalent cations and anions cannot pass through this channel.

Potency min. 900 IU/mg
Assay (HPLC) min. 95.0 %
(sum of A1, A2, B1, C1 and C2)

References:

1. Watanabe, Sadao a. Watanabe, Shigenobu (1989) J. Membr. Sci. **44**, 253-63
2. Wallace, B.A. (1990). Annu. Rev. Biophys. Biophys. Chem. **19**, 127-57
3. Andersen, O.S. et al. (2005) Nanobioscience **4**, 10-20
4. Kelkar, D.A. a. Chattopadhyay, A. (2007) Biochim. Biophys. Acta **1768**, 2011-25

Cat.No.	Size
24150.01	100 mg

■ **GSH**

see 23150 L-Glutathione (reduced form), page 52, 148, 342

■ **GSSG**

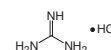
see 23130 L-Glutathione (oxidized form), page 52, 148, 342

■ **GST-Tag Purification**

see Chapter Sample Preparation, page 132

■ **Guanidine-HCl analytical grade**

(Aminomethanamidine)

CH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]**WARNING**

H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

Assay min. 99.5 %
pH (6 M water 20 °C) 4.5 - 6.0
A 1 cm/10 % in water
260 nm max. 0.03
280 nm max. 0.015
Heavy metals (Pb) max. 10 ppm
Arsenic max. 3 ppm
Ammonium max. 0.05 %

References:

1. Strohmair et al. (1977) Cell **10**, 265
2. MacDonald et al. (1987) Methods Enzymol. **152**, 219

Cat.No.	Size
24200.03	250 g
24200.04	1 kg

■ **Guanidine-HCl molecular biology grade**CH₅N₃·HCl ♦ M_r 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
Heavy metals max. 10 ppm

Cat.No.	Size
39558.01	100 g
39558.02	500 g

■ **Guanidine-HCl research grade**

(Aminomethanamidine)

CH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]**WARNING**

H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

Assay (titr.) min. 99.0 %
pH (6 M in water 20 °C) 4.5 - 6.0
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
24205.01	250 g
24205.02	1 kg

■ **Guanidine-thiocyanate molecular biology grade**CH₅N₃·HSCN ♦ M_r 118.2 ♦ CAS [593-84-0]**WARNING**

H302-H312-H332-H412 ♦ EG-Index 615-004-00-03 ♦
EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

DNase/RNase not detected. Suitable for the isolation of RNA.

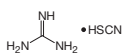
Assay > 99.0 %
MP 115 - 122 °C
A 1 cm/3 M in water
280 nm < 0.4
300 nm < 0.05
Heavy Metals (as Pb) < 5 ppm
Iron (Fe) < 5 ppm

Cat.No.	Size
39577.01	250 g
39577.02	500 g

Guanidine-thiocyanate research grade

(Guanidine rhodanide)

$\text{CH}_3\text{N}_3\cdot\text{HSCN}$ ♦ M_r 118.2 ♦ CAS [593-84-0]



WARNING

H302-H312-H332-H412 ♦ EG-Index 615-004-00-3 ♦
EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

Efficient protein denaturing agent in the isolation of RNA.

Assay (titr.) min. 99.0 %
MP 115 - 122 °C

References:

1. Lizardi, P.M. (1983) Methods Enzymol. **96**, 24-38

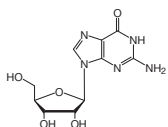
Cat.No.	Size
24220.02	250 g
24220.03	1 kg

Guanosine research grade

$\text{C}_{10}\text{H}_{13}\text{N}_5\text{O}_5$ ♦ M_r 283.24 ♦ CAS [118-00-3]

EINECS 204-227-8 ♦ WGK 1 ♦ HS 29349990

Assay (HPLC) min. 98.0 %
Assay (UV, 254 nm) min. 98.0 %



Cat.No.	Size
24270.02	25 g
24270.03	100 g

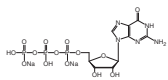
Guanosine-5'-triphosphate- Na_2 -salt analytical grade

(GTP)

$\text{C}_{10}\text{H}_{14}\text{N}_5\text{O}_{14}\text{P}_3\cdot\text{Na}_2\cdot 3\text{H}_2\text{O}$ ♦ M_r 567.2 (anhydrous) ♦
CAS [56001-37-7]

EINECS 259-940-7 ♦ WGK 1 ♦ HS 29389090
Storage temperature -15 °C to -25 °C *

Assay from ϵ 252 nm, pH 7 min. 96.0 %
Water content max. 10.0 %



Cat.No.	Size
24321.02	100 mg
24321.03	250 mg

Hematoxylin pure

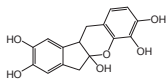
(Natural Black)

C.I.75290 ♦ $\text{C}_{16}\text{H}_{14}\text{O}_6$ ♦ M_r 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

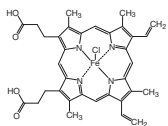
Hemin cryst. research grade

(Hemin chloride; Chlorohemin; Ferriprotoporphyrin IX-chloride)

$\text{C}_{34}\text{H}_{32}\text{FeN}_4\text{O}_4\cdot\text{Cl}$ ♦ M_r 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
24410.03	25 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 %
Heavy metals max. 30 ppm

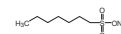
Cat.No.	Size
24590.01	500 mg
24590.02	2.5 g
24590.03	10 g

HEPES

see 25245 N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid, page 57, 148, 321, 355, 366

1-Heptanesulfonic acid- Na -salt research grade

$\text{C}_7\text{H}_{15}\text{O}_3\text{S}\cdot\text{Na}$ ♦ M_r 202.25 ♦ CAS [22767-50-6]



WARNING

H315-H319-H335 ♦ EINECS 245-210-5 ♦ WGK 1 ♦ HS 29041000

Assay (titr.) min. 98.0 %
A 1 cm/220 nm/0.005 M in water max. 0.08

Cat.No.	Size
24604.01	5 g
24604.02	25 g

Heteroauxins

see 26181 Indole-3-acetic acid, page 59, 310

His-Tag Purification

see Chapter Sample Preparation, page 129

L-Histidine-HCl monohydrate cell culture grade

(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)

$\text{C}_6\text{H}_9\text{N}_3\text{O}_2\cdot\text{HCl}\cdot\text{H}_2\text{O}$ ♦ M_r 209.6 ♦ CAS [5934-29-2]

EINECS 213-754-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying 7.0 - 10.0 %
Ammonium (NH_4) max. 0.02 %
Chloride (Cl) 16.66 - 17.08 %
Sulfate (SO_4) 0.02 %
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
47208.01	100 g
47208.02	500 g

L-Histidine base cell culture grade

(His; L-2-Amino-3-(4-imidazolyl)-propionic acid)

$\text{C}_6\text{H}_9\text{N}_3\text{O}_2$ ♦ M_r 155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying max. 0.2 %
Ammonium (NH_4) max. 200 ppm
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
47207.01	100 g
47207.02	500 g

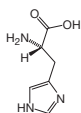
■ **L-Histidine base** research grade

(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

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
24820.02	100 g
24820.03	1 kg

■ **L-Histidine-HCl monohydrate** research grade

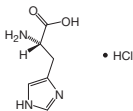
(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)

$C_6H_9N_3O_2 \cdot HCl \cdot H_2O$ ♦ M_r 209.6 ♦ CAS [5934-29-2]

EINECS 213-754-2 ♦ WGK 1L ♦ HS 29332990

Ph. Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
24842.02	100 g

■ **Histoplast-S**

HS 27129099

Special embedding medium for histology. Smooth sections can be obtained without cooling the knife or preparation. Histoplast-S is ductile and not brittle so that sections of thickness down to 4 µm are attainable without deformation. Use of Histoplast-S does not necessitate any change in staining or embedding techniques.

MP 55 - 57 °C
 Assay (Paraffin) 99.47 %

Cat.No.	Size
24895.01	1 kg

■ **Hoechst 33258**

see 15090 Bisbenzimidazole H 33258, page 18, 369

■ **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™ Tower, FlatTop 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.

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™ Tower, FlatTop 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.

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 strip plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop 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.

Cat.No.	Size
43302.01	1 kit

■ **2D HPE™ Double Gel NF 10 - 15 % Kit** Size: 250 x 110 x 0.65

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 strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop 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.

Cat.No.	Size
43303.01	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™ Tower, FlatTop 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.

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™ Tower, FlatTop 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.

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™ Tower, FlatTop 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.

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. 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.

Cat.No.	Size
43304.01	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™ Tower, FlatTop 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.

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™ Tower, FlatTop 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.

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 lane by horizontal electrophoresis on HPE™ Tower, FlatTop 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.

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 lane by horizontal electrophoresis on HPE™ Tower, FlatTop 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.

Cat.No.	Size
43300.01	1 kit

■ Hyaluronidase from ovine testes min. 1000 U/mg lyophil.

EC 3.2.1.35 ♦ M_r ca. 55 000 ♦ CAS [37326-33-3]

DANGER

H334 ♦ EINECS 253-464-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

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 109, 364

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade

(HEPES)

C₈H₁₈N₂O₄S ♦ M_r 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

280 nm

Heavy metals (Pb)

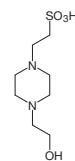
pH 10 % in water

max. 0.1

max. 0.08

max. 10 ppm

5.0 - 6.5

References:1. Good, N.E. et al. (1966) Biochemistry **5**, 467-772. Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-103. Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6

Cat.No.	Size
25245.02	25 g
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 research grade

(HEPES-Na-salt)

C₈H₁₇N₂O₄S-Na ♦ M_r 260.3 ♦ CAS [75277-39-3]

EINECS 278-169-7 ♦ WGK 1 ♦ HS 29335995

pKa 20 = 7.55

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

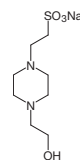
280 nm

pH 10 % in water

max. 0.15

max. 0.1

9.5 - 11.5



Cat.No.	Size
25249.03	100 g
25249.05	250 g
25249.04	1 kg

■ N-(2-Hydroxyethyl)trimethylammonium-chloride

see 17130 Choline-chloride, page 26, 319

■ 3-Hydroxypropionic acid lactone

see 33672 β-Propiolactone, page 84

■ 6-Hydroxypurine riboside

see 26250 Inosine, page 59

■ Hygromycin B solution

C₂₀H₃₇N₅O₁₃ ♦ M_r 527.53 ♦ CAS [31282-04-9]

DANGER

H300-H310-H315-H318-H330-H3

35 ♦ GGVSE/ADR 6.1 I UN2810 ♦

IATA 6.1 I UN2810 ♦ WGK 2 ♦ HS 29419000

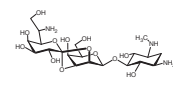
Storage temperature +2 °C to +8 °C

Aminoglycoside antibiotic that inhibits growth of procaryotic micro-organisms (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. 500 000 U correspond to approx. 1 ml.

Assay (HPLC) min. 80.0 %

Microbiological activity min. 400 000 U/ml

References:1. Gonzales, A. et al. (1978) Biochim. Biophys. Acta **512**, 4592. Pardo, J.M. et al. (1985) J. Gen. Microbiol. **131**, 12893. Kuhstoss, S. & Rao, R.N. (1983) Gene **26**, 2954. Ma, H. et al. (1992) Gene **117**, 1615. Munshi, T. et al. (2013) PLOS ONE **8**(3): e60143

Cat.No.	Size
25966.01	500.000 U

■ Hypoxanthine-9-β-D-ribofuranoside

see 26250 Inosine, page 59

■ IAA

see 26181 Indole-3-acetic acid, page 59, 310

■ IBA

see 26172 Indole-3-butyric acid, page 59, 310

■ IBMX

see 26445 3-Isobutyl-1-methylxanthine, page 60

■ IDA-Agarose Resins

see 42140 SERVA IDA Metal-Free HD Agarose Resin, page 130

■ IEF Sample Buffer (2x) sterile filtered

HS 38220000

Storage temperature +2 °C to +8 °C

The SERVA IEF sample buffer is suited to all vertical and horizontal IEF applications and systems. The SERVA IEF sample buffer is supplied as 2x concentrate. It is sterile filtered, beneficial to long shelf life and absence of contaminants. The 2x concentrate is suited to liquid and solid samples. 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 buffer required for CSF analysis in IEF gels.

Cat.No.	Size
43336.01	100 ml

■ IMAC Agarose Resins

see Chapter Sample Preparation, page 129

■ Imidazole research grade

C₃H₄N₂ ♦ M, 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

Assay (GC) min. 99.0 %



Cat.No.	Size
26081.01	100 g
26081.02	500 g

■ Immobilon™-P-membrane

Pore size 0.2 µm, format: 26.5 cm x 3.75 m

HS 39219090

Pore size 0.2 µm, format: 26.5 cm x 3.75 m Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Immobilon = trademark of Millipore.

Cat.No.	Size
42574.01	1 roll

■ 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 polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Cat.No.	Size
42581.01	1 roll

■ Includal A

HS 38220000

Universal aqueous, self-hardening slide mounting medium for microscopy. It is pH-neutral and suitable for all standard staining methods.

Refractive index 1.51 - 1.53

Cat.No.	Size
23314.01	10 ml

■ Includal AC after Hoyer

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is especially suitable for entomological and botanical specimens.

Refractive index 1.41 - 1.43

Cat.No.	Size
23315.01	30 ml

■ Includal CB for microscopy

HS 38220000

Synthetic canada balsam. Non-aqueous, non evanescent mounting medium for microscopy. Xylene-free alternative for Malinol, Renohistol. If necessary, the viscosity can be adjusted with the included thinner.

Refractive index 1.51

Cat.No.	Size
23324.01	100 ml

■ Includal DMHF

HS 38220000

Aqueous, rapidly self-hardening slide mounting medium for microscopy based on dimethyl hydantoin formaldehyde resin. For use in entomology.

Refractive index 1.38 - 1.40

Cat.No.	Size
23320.01	10 ml

■ Includal PVA

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is adjusted to be slightly acidic and clarifying. Especially suitable for entomological and histological specimens.

Refractive index 1.43 - 1.47

Cat.No.	Size
23316.01	10 ml

■ **Includal PVL**

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy on polyvinyl alcohol basis. It is adjusted to be slightly acidic for use in entomology.

Refractive index 1.42 - 1.44

Cat.No.	Size
23318.01	10 ml

■ **Includal PVLA**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinyl alcohol basis for use in entomology. It is rapidly self-hardening with higher solids content.

Refractive index 1.41 - 1.43

Cat.No.	Size
23319.01	10 ml

■ **Includal PVP**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinylpyrrolidone basis. It is pH neutral and rapidly self-hardening. Especially suitable for sensitive staining.

Refractive index 1.42 - 1.44

Cat.No.	Size
23317.01	10 ml

■ **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

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

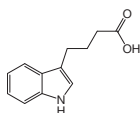
Storage temperature +2 °C to +8 °C

Plant growth regulator. Sensitive to light, store in the dark.

Assay (titr.) min. 99.0 %

Water (KF) max. 1.0 %

Cat.No.	Size
26172.02	5 g
26172.03	25 g
26172.04	100 g

■ **Inosine** research grade

(Hypoxanthine-9-β-D-ribofuranoside; 6-Hydroxypurine riboside)

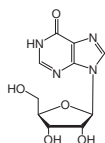
 $C_{10}H_{12}N_4O_5$ ♦ M_r 268.23 ♦ CAS [58-63-9]

EINECS 200-390-4 ♦ WGK 1 ♦ HS 29349990

Assay from ε249 nm, pH 7 min. 98.0 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26250.02	25 g
26250.03	100 g

■ **meso-Inositol**see 26310 *myo*-Inositol, page 59, 321■ **myo-Inositol** research grade(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

USP/NF. 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
26310.02	500 g

■ **Insulin, recombinant human, min. 27.5 IU/mg** M_r ca. 5800 ♦ CAS [11061-68-0]

HS 29371200

Storage temperature -15 °C to -25 °C

Ph.Eur., USP. 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
26360.02	250 mg

■ **INT**

see 26840 Iodonitrotetrazolium chloride, page 60, 345

■ **Inulin** research grade

(Poly-β-(2 → 1) fructofuranosan with glucose endgroups; polyfructose)

 $(C_6H_{10}O_5)_n$ ♦ M_r (162.1)_n ♦ CAS [9005-80-5]

EINECS 232-684-3 ♦ WGK 1 ♦ HS 11082000

[α] D/20 °C (c=2 in water) -36.5 ° to -40.5 °

Cat.No.	Size
26362.02	25 g
26362.03	100 g

■ **Iodoacetamide** research grade C_2H_4INO ♦ M_r 185.0 ♦ CAS [144-48-9]

WARNING

H315-H317-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 (from N)

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



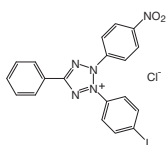
Products for Life Sciences:
see special chapter at p. 275

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 GM₁ 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
26840.04	50 g

Ion Exchange Media

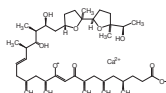
see Special Section, page 375

Ionomycin-Ca-salt research grade

$C_{41}H_{70}O_9 \cdot Ca$ ♦ M_r 747.1 ♦ CAS [56092-82-1]



WARNING
 H302-H312-H332 ♦ WGK 1 ♦ HS 29419000
 Storage temperature +2 °C to +8 °C



Ionophore polyether antibiotic from *Streptomyces conglobatus*. Highly specific for bivalent ions, more effective than A 23187 as a Ca^{2+} ionophore. Active against Gram-positive bacteria. Used for studies on Ca^{2+} transport through membranes (1,2,4,5); induces apoptosis (3,6,7).

Purity (HPLC, TLC) min. 98.0 %
 MP min. 198 °C

References:

1. Beeler, T.J. et al. (1979) J. Biol. Chem. **254**, 6229-31
2. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
3. Gil-Parrado, S. et al. (2002) J. Biol. Chem. **277**, 27217-26
4. Abramov, A.Y. a. Duchon, M.R. (2003) Cell Calcium **33**, 101-12
5. Caverra, M.S. et al. (2003) J. Exp. Zool. A. Comp. Exp. Biol. **297**, 130-7
6. Mc. Collum, A.T. et al. (2004) J. Neurosci. Res. **76**, 104-9
7. Baines, C.P. et al. (2005) Nature **434**, 658-62
8. Zhou Y. et al. (2010) Nature Struct. Mol. Biol. **17**, 112-6

Cat.No.	Size
26379.01	1 mg

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 SERVA IPG BlueStrip, page 93, 213

IP TG

see 26600 Isopropyl-β-D-thiogalactopyranoside, page 61, 298, 346

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/m³; 100 ml/m³ ♦
 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 %
 Acidity (as CH_3COOH) max. 0.003 %
 Water (KF) max. 0.5 %
 Residue on evaporation max. 0.002 %
 Heavy metals (as Pb) max. 0.00001 %
 Zinc max. 0.00001 %

References:

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

Cat.No.	Size
39557.01	250 ml
39557.02	1 L

3-Isobutyl-1-methylxanthine research grade

(IBMX)

$C_{10}H_{14}N_4O_2$ ♦ M_r 222.2 ♦ CAS [28822-58-4]

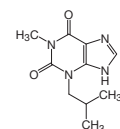
EINECS 249-259-3 ♦ HS 29335995

Inhibitor of cAMP-phosphodiesterase. Soluble in ethanol.

Assay (HPLC) min. 98.0 %
 MP 198 - 202 °C

References:

1. Ashcroft, S.J.H. et al. (1973) FEBS Lett. **20**, 263-6



Cat.No.	Size
26445.02	500 mg

L-Isoleucine cell culture grade

((2S, 3S)-2-Amino-3-methylpentanoic acid; 2-amino-3-methylvaleric acid; ILE)

$C_6H_{13}NO_2$ ♦ M_r 131.17 ♦ CAS [73-32-5]

EINECS 200-798-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.2 %
 Ammonium (NH_4) max. 200 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size
47209.01	25 g
47209.02	100 g

L-Isoleucine research grade

((2S, 3S)-2-Amino-3-methylpentanoic acid; 2-amino-3-methylvaleric acid; ILE)

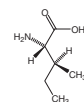
$C_6H_{13}NO_2$ ♦ M_r 131.17 ♦ CAS [73-32-5]

EINECS 200-798-2 ♦ WGK 1 L ♦ HS 29224985

USP, EP.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
26540.03	100 g
26540.06	500 g



BlueLine Equipment
for Electrophoresis:
 see special chapter at p. 253

■ **Isopropanol** analytical gradeC₃H₈O ♦ M_r 60.1 ♦ CAS [67-63-0]

DANGER

H225-H319-H336 ♦ EG-Index 603-117-00-0 ♦ GGVS/ADR 3 II UN1219 ♦ IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦ WGK 1 L ♦ HS 29051200

Assay (GC)	min. 99.7 %
Density (20 °C)	0.785
Water	max. 1000 ppm
Acidity	max. 0.001 %
Residue on evaporation	max. 10 ppm

Cat.No.	Size
45629.01	1 L
45629.02	2,5 L

■ **Isopropanol** molecular biology grade

(2-Propanol)

C₃H₈O ♦ M_r 60.09 ♦ CAS [67-63-0]

DANGER

H225-H319-H336 ♦ MAK/TRK 500 mg/m³; 200 ml/m³ ♦ EG-Index 603-117-00-0 ♦ GGVS/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 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.13-E.14)

Cat.No.	Size
39559.01	250 ml
39559.02	1 L

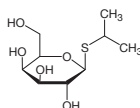
■ **Isopropyl-β-D-thiogalactopyranoside** research grade

(IPTG; Isopropyl-1-thio-β-D-galactopyranoside)

C₉H₁₈O₅S ♦ 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⁺ colonies. Dissolve in H₂O 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)	98.0 - 101.0 %
[α] _D 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**, 14826-39
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 gradeC₁₈H₃₆N₄O₁₁ · 1.7 H₂SO₄ ♦ M_r 651.2

HS 29419000

Storage temperature +2 °C to +8 °C

BP. 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

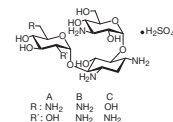
Cat.No.	Size
26898.01	1 g
26898.02	5 g
26898.03	25 g

■ **Kanamycin sulfate** molecular biology gradeC₁₈H₃₆N₄O₁₁ · H₂SO₄ · H₂O ♦ M_r 600.6 ♦ CAS [25389-94-0]

DANGER

H360D ♦ EINECS 246-933-9 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Ph. Eur. Min. 750 U/mg. Aminoglycoside antibiotic. Mechanism of action similar to streptomycin sulfate. HPLC (2).

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
26899.01	1 g
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

■ **Kinetin** analytical grade

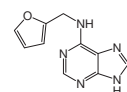
(6-Furfurylaminopurine)

C₁₀H₉N₅O ♦ M_r 215.21 ♦ CAS [525-79-1]

EINECS 208-382-2 ♦ HS 29349990

Plant growth regulator.

Assay (HPLC) min. 99.5 %



Cat.No.	Size
27190.02	1 g
27190.04	5 g

■ Lactate dehydrogenase from porcine heart

min. 300 U/mg protein 2xcryst. suspension

(L-LDH; Lactate; NAD⁺ oxidoreductase)

EC 1.1.1.27 ♦ M_r ca. 140 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Highly purified suspension of 2x cryst. material in 70 % saturated ammonium sulphate, pH approx. 7.2.

Preparation contains predominantly isoenzymes LDH 1 and 2. LDH is used for the determination of lactate (1) and in coupled systems for detection of biological metabolites.

Unit definition: 1 U catalyzes the reduction of 1 μmole of pyruvate to L-lactate per minute at 25 °C, pH 7.0 in the presence of NADH (oxidation of 1 μmole NADH) (2).

Extraneous activities: PK, GPT, each max. 0.01 %; MDH max. 0.05 %

References:

1. Wahlefeld, A.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 3, p. 126-33
2. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed., vol. 2, p. 232-3

Cat.No.	Size
27415.01	25 mg
27415.02	100 mg

■ L-Lactic acid-Na-salt cryst. research grade

(Sodium lactate)

C₃H₅O₃-Na ♦ M_r 112.1 ♦ CAS [867-56-1]

EINECS 212-762-3 ♦ HS 29181100

Suitable as LDH-substrate.

Assay (titr.)

min. 99.0 %

[α] 20 °C/D (c=1 in water)

-12.0 ° ± 1.0 °



Cat.No.	Size
29763.01	5 g
29763.02	25 g

■ Lactoflavin

see 34350 Riboflavin, page 88, 324

■ Lactose research grade

(β-D-Galactopyranosyl-(1→4)-D-Glucose

Monohydrate; Milk sugar)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.3 ♦ CAS [10039-26-6]

EINECS 200-559-2 ♦ HS 17021100

Ph.Eur.

Heavy metals (Pb)

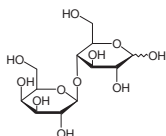
max. 5 ppm

[α] 20 °C/D (c=10 in H₂O)

+54.4 ° to +55.9 °

Water

4.5 - 5.5 %



Cat.No.	Size
27451.02	1 kg

■ 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)

C₁₅H₂₈NO₃Na ♦ M_r 293.4



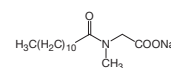
DANGER

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

■ Lauryl-β-D-maltoside

see 20780 Dodecyl-β-D-maltoside, page 40, 144, 246

■ LavaPurple™

see 43386 SERVA Purple, page 96, 240

■ 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 5N 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:

1. Luria, S.E., et al., Virology **12**, 348-390 (1960)
2. 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 5N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

References:

1. Luria, S.E., et al., Virology **12**, 348-390 (1960)
2. 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

■ L-LDH

see 27415 Lactate dehydrogenase from porcine heart min. 300 U/mg protein, page 62, 335

■ Lecithin from egg yolk pure

CAS [93685-90-6]

EINECS 297-639-2 ♦ HS 29232000

Storage temperature -15 °C to -25 °C

Phosphatidyl choline

min. 60.0 %

Iodine number

min. 60.0

Peroxide value

max. 3

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

Phosphatidyl choline	min. 18.0 - 25.0 %
Acetone insol. substance	min. 96.5 %
Toluol soluble substances	max. 0.3 %

Cat.No.	Size
57556.01	100 g
57556.02	1 kg

■ L-Leucine cell culture grade

(Leu; L-2-Amino-4-methylpentanoic acid; 2-Amino-4-methylvaleric acid)

 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [61-90-5]

EINECS 200-522-0 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size
47210.01	100 g
47210.02	500 g

■ L-Leucine research grade

(Leu; L-2-Amino-4-methylpentanoic acid; 2-Amino-4-methylvaleric acid)

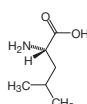
 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [61-90-5]

EINECS 200-522-0 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)	min. 98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm.

Cat.No.	Size
27690.02	100 g
27690.03	500 g



■ Leupeptin

(Acetyl-L-leucyl-L-leucyl-L-argininal)

 $C_{20}H_{38}N_6O_4 \cdot 1/2 H_2SO_4$ ♦ M_r 475.6 ♦ CAS [103476-89-7]

WARNING
H302-H332 ♦ WGK 1 ♦ HS 29241900
Storage temperature -15 °C to -25 °C

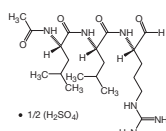
Inhibitor of serine and cysteine proteases.

Assay (HPLC)	min. 96.5 %
(sum of tautomeric isomers)	

References:

1. Umezawa, H. (1976) *Methods Enzymol.* **45**, 678-83
2. Carlin, C. et al. (1994) *J. Cell. Physiol.* **160**, 427-34
3. Savory, P.J. & Rivett, A.J. (1993) *Biochem. J.* **289**, 45-8
4. Eto, I. & Bandy, M.D. (1990) *Mol. Cell. Biochem.* **94**, 19-36
5. 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 46

■ 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:

1. Lowry O. H., et al. (1951) *J. Biol. Chem.* **193**, 265 - 275

Cat.No.	Size
39236.01	250 tests

■ Lubrol 17A17

(Lubrol W1; Lubrol WX)



WARNING

H302-H319 ♦ WGK 1 ♦ HS 34021300

Ethylene oxide condensate of fatty alcohols; cetyl-stearyl ether.
Nonionic surfactant, emulsifier.

MP	34 - 38 °C
Hydroxyl number	53.0 - 60.0
pH 1 % in water	7.0 - 9.0

Cat.No.	Size
28070.01	100 g
28070.02	500 g

■ D-Luciferin cryst. research grade

(4,5-Dihydro-2-[6-hydroxy-2-benzothiazolyl]-4-thiazolecarboxylic acid)

 $C_{11}H_8N_2O_3S_2$ ♦ M_r 280.3 ♦ CAS [2591-17-5]

EINECS 219-981-3 ♦ HS 29342080

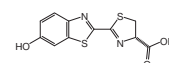
Storage temperature -15 °C to -25 °C

Synthetic. Addition of luciferin to the luciferin-luciferase system increases ATP detection limit 1000 fold. Suitable for luciferase assay and ATP measurement. For luciferase assay prepare stock solution of 1 mM D-Luciferin, 25 mM glycylglycine, 10 mM DTT (cat. no. 20710), store aliquots at -70 °C.

References:

1. Karl, D. & Holm, O. (1976) *Anal. Biochem.* **75**, 100-12

Cat.No.	Size
28073.02	10 mg
28073.03	50 mg



■ Luminol research grade

(3-Aminophthalhydrazine; 5-Amino-2,3-dihydro-1,4-phthalazinedione)

 $C_8H_7N_3O_2$ ♦ M_r 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 %
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References:

1. Freeman, T.M. & Seitz, W.R. (1978) *Anal. Chem.* **50**, 1242-6
2. Huu, T.P. et al. (1984) *Anal. Biochem.* **142**, 467-2
3. Roswell, D.F. & White, E.H. (1978) *Methods Enzymol.* **57**, 409-23
4. Leong, M.M. L. & Fox, G.R. (1990) *Methods Enzymol.* **184**, 442-51

Cat.No.	Size
28085.02	5 g
28085.03	25 g



■ L-Lysine cryst. research grade

(Lys; L-2,6-Diaminohexanoic acid; 2,6-Diaminocaproic acid)

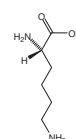
 $C_6H_{14}N_2O_2 \cdot H_2O$ ♦ M_r 164.21 ♦ CAS [39665-12-8]

EINECS 200-294-2 ♦ WGK 1L ♦ HS 29224100

Storage temperature +2 °C to +8 °C

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

Cat.No.	Size
28195.01	25 g
28195.02	100 g
28195.03	500 g



■ L-Lysine-HCl cell culture grade

(Lys-HCl; L-2,6-Diaminohexanoic acid-HCl; 2,6-Diaminocaproic acid-HCl)
 $C_6H_{14}N_2O_2 \cdot HCl$ ♦ M_r 182.7 ♦ CAS [657-27-2]

EINECS 211-519-9 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxine	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 30 ppm

Cat.No.	Size
47211.01	100 g
47211.02	500 g

■ L-Lysine-HCl research grade

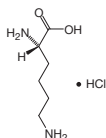
(Lys-HCl; L-2,6-Diaminohexanoic acid-HCl; 2,6-Diaminocaproic acid-HCl)

$C_6H_{14}N_2O_2 \cdot HCl$ ♦ M_r 182.7 ♦ CAS [657-27-2]

EINECS 211-519-9 ♦ WGK 1L ♦ HS 29224100

Ph. Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm



Cat.No.	Size
28220.01	100 g
28220.02	500 g

■ Lysozyme from chicken egg white

min. 100 000 units/mg cryst.

(Muramidase; mucopeptide-glycohydrolase; mucopeptide N-acetyl-muramoylhydrolase)

EC 3.2.1.17 ♦ M_r ca. 14 400 ♦ CAS [12650-88-3]



DANGER

H334 ♦ EINECS 235-747-3 ♦ 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 e.g. *Micrococcus luteus*. 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. The lysis of *Micrococcus luteus* cells is used for the activity testing of lysozyme. In gram-negative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca^{2+} 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, 4).

Unit definition: 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 7.0, in a suspension of *Micrococcus luteus* cells (reaction volume 3 ml, light path 1 cm) (3).

Isoelectric point: 10.5 - 11.0

Optimum pH: 9.2

References:

1. Imoto, T. et al. (1972) The Enzymes **VII**, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
2. 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)
3. Shugar, D. (1952) Biochim. Biophys. Acta **8**, 302-9
4. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size
28262.02	2,5 g
28262.03	10 g
28262.04	50 g

■ 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 μ mole 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 μ mole 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 μ mole 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:

1. Yamada, Y. et al. (1972) Agr. Biol. Chem. **36**, 1055-9
2. Barraclough, R. & Ellis, R.J. (1979) Eur. J. Biochem. **94**, 165-77
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size
28302.02	2,5 g
28302.03	10 g
28302.04	50 g

■ α_2 -Macroglobulin from human plasma lyophil.

(α_2 -M)

M_r 725 000 ♦ CAS [95568-41-5]

HS 35040090

Storage temperature -15 °C to -25 °C

Homogeneous by SDS-PAGE. Contains glycine as stabilizer. Major plasma protein in humans. Functions range from ion transport to the inhibition of proteinases. Inhibits most endoproteinases. Elevated levels are seen in clinical conditions such as cirrhosis, nephrotic syndrome, severe burns and diabetes (1). Package weight refers to weight of α_2 -macroglobulin.

References:

1. Barrett, A.J. (1981) Methods Enzymol. **80**, 737-54
2. Travis, J. & Salvesen, G.S. (1983) Ann. Rev. Biochem. **52**, 655-709

Cat.No.	Size
28301.01	1 mg

■ Macrogol

see 33136 Polyethylene glycol 4000, page 81, 149, 374

■ Magenta O

see 31627 Parafuchsin, page 76

■ Magnesium chloride-6H₂O cryst. research grade

$MgCl_2 \cdot 6H_2O$ ♦ M_r 203.3 ♦ CAS [7791-18-6]

EINECS 232-094-6 ♦ WGK 1L ♦ HS 28273100

Ph.Eur.

Assay (titr.; hydrate)	98.0 - 101.0 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size
28305.01	100 g

■ Magnesium chloride-6H₂O molecular biology grade

$MgCl_2 \cdot 6H_2O$ ♦ M_r 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

DNase/RNase not detected.

Composition:
MgCl₂·6H₂O (cat. no. 39771) 203.30 g/l

Cat.No.	Size
39772.01	100 ml
39772.02	500 ml

■ Magnesium sulfate heptahydrate molecular biology grade

MgSO₄·7H₂O ♦ 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

■ Malachite green oxalate research grade

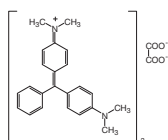
(Basic Green 4)

C.I.42000 ♦ (C₂₃H₂₅N₂)₂·C₂O₄²⁻·2C₂H₂O₄ ♦ M_r 927 ♦ CAS [2437-29-8]

DANGER

H302-H318-

H361d-H400-H410 ♦ EG-Index 602-096-00-5 ♦
 GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦
 EINECS 219-441-7 ♦ WGK 3L ♦ HS 32041300



Suitable for bacteriology and histological staining. For fifty-fold amplification of the Lowry protein assay.

λmax. 0.0001 % in H₂O 618 ± 2 nm
References:
1. Sargent, M.G. (1987) Anal. Biochem. **163**, 476-81

Cat.No.	Size
28335.03	25 g

■ Malate dehydrogenase from porcine heart mitochondria min. 1500 U/mg protein suspension

(MDH)

EC 1.1.1.37 ♦ M_r ca. 70 000

DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A highly purified suspension in 80 % saturated ammonium sulfate. Suitable for GOT determination in serum.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the reduction of 1 μmole oxaloacetate to malate (oxidation of 1 μmole NADH) per minute at 25 °C, pH 7.4 (1).

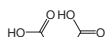
Extraneous activities: GPT, LDH, GOT, GLDH, CK and fumarase less than 0.003 %.

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. 2, p. 246-7

Cat.No.	Size
28338.01	5 mg
28338.02	25 mg

■ Maleic acid analytical grade

C₄H₄O₄ ♦ M_r 116.07 ♦ CAS [110-16-7]

WARNING

H302-H315-H317-H319-H335 ♦ EG-Index 607-095-00-3 ♦

GGVSE/ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦ EINECS 203-742-5

♦ WGK 1L ♦ HS 29171990

Assay (titr.) 99.0 - 101.0 %

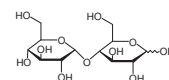
Cat.No.	Size
28337.02	500 g

■ D-Maltose research grade

(Maltobiose; 4-O-α-D-Glucopyranosyl-D-glucopyranose)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.32 ♦ CAS [6363-53-7]

EINECS 200-716-5 ♦ WGK 1 ♦ HS 17029010



Assay (HPLC) min. 95.0 %
 [α] 20 °C/D (c=5 in water) +137 ± 2 °
 Heavy metals (Pb) max. 10 ppm

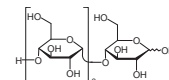
Cat.No.	Size
28390.01	50 g
28390.02	250 g

■ Maltotriose pure

C₁₈H₃₂O₁₆ ♦ M_r 504.44 ♦ CAS [1109-28-0]

EINECS 214-174-2 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC) min. 95.0 %



Cat.No.	Size
28395.01	250 mg
28395.02	1 g

■ Manganese (II) chloride·4H₂O analytical grade

MnCl₂·4H₂O ♦ M_r 197.91 ♦ CAS [13446-34-9]

WARNING

H302-H412 ♦ EINECS 231-869-6 ♦ WGK 1L ♦ HS 28273985

Assay

min. 99 %

Cat.No.	Size
28403.01	100 g

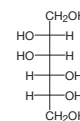
■ D-Mannitol analytical grade

C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [69-65-8]

EINECS 200-711-8 ♦ WGK 1 ♦ HS 29054300

Ph. Eur.

Assay (HPLC) 98.0 - 102.0 %
 Reducing sugars max. 0.2 %



Cat.No.	Size
28410.02	250 g
28410.03	1 kg

■ D-Mannose research grade

(Carubinose; Seminose)

C₆H₁₂O₆ ♦ M_r 180.2 ♦ CAS [3458-28-4]

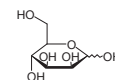
HS 29400000

Assay (HPLC)

min. 99.7 %

MP

128 - 134 °C



Cat.No.	Size
28460.01	10 g
28460.02	50 g

■ MEMBRA-CEL® Dialysis Membranes

see Chapter Dialysis, page 158

■ Melittin

M_r 2847 ♦ CAS [37231-28-0]

WARNING

H302-H312 ♦ EINECS 253-417-7 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

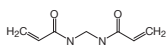
Gly-Ile-Gly-Ala-Val-Leu-Lys-Val-Leu-Thr-Thr-Gly-Leu-Pro-Ala-Leu-Ile- Ser-Trp-Ile-Lys-Arg-Lys-Arg-Gln-Gln-NH₂.

From bee venom. Purified by chromatography. Highly sensitive substrate for detection of chymotrypsin.

Cat.No.	Size
51560.01	5 mg
51560.02	50 mg

N,N'-Methylene bisacrylamide 2X analytical grade

(Bis(acrylamido)methane)
 $C_7H_{10}N_2O_2$ ♦ M_r 154.2 ♦ CAS [110-26-9]



WARNING
 H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

Assay (titr.) min. 99.0 %
 A 290 nm/1 % in water max. 0.25
 pH 1 % in water 5.5 - 7.5

Cat.No.	Size
29195.04	10 g
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

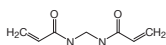
N,N'-Methylene bisacrylamide 2X solution. Solution contains 2 % (w/v) highly purified »Bis« in deionized water.

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

N,N'-Methylene bisacrylamide 4X analytical grade

(Bis(acrylamido)methane)
 $C_7H_{10}N_2O_2$ ♦ M_r 154.2 ♦ CAS [110-26-9]



WARNING
 H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Ultrapure electrophoresis grade, applicable for standard and high resolution electrophoresis techniques.

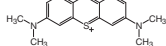
Assay (titr.) min. 99.0 %
 A 290 nm/1 % in water max. 0.25
 pH 1 % in water 5.5 - 7.5

Cat.No.	Size
29196.01	10 g
29196.02	50 g
29196.03	250 g

Methylene Blue

(Basic Blue 9; Methylene blue chloride; Methylthionine chloride)

$C_{16}H_{18}N_3S^+Cl^-$ ♦ M_r 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) 665 ± 2 nm
 A 1 cm/ λ_{max} ./0.0001 % in water min. 0.17
 Water (KF) max. 15.0 %
 Sulfated ash max. 1.0 %

References:

- Herrini & Schmidt (1988) Rapid, reversible staining of Northern Blots prior to hybridization. *BioTechniques* 6, 196

Cat.No.	Size
29198.01	25 g
29198.02	100 g

Methylnadic anhydride pract.

(NMA; EPON hardener MNA; Methylnorbornene-2,3-dicarboxylic anhydride; Nadic Methyl anhydride)

$C_{10}H_{10}O_3$ ♦ M_r 178.19 ♦ CAS [25134-21-8]



DANGER
 H302-H315-H319-H334-H335 ♦ EG-Index 607-106-00-1
 ♦ GGVSE/ADR 8 III UN1760 ♦ IATA 8 III UN1760 ♦

EINECS 246-644-8 ♦ WGK 1 ♦ HS 29172000

Hardener component for polyester and epoxy resins, for example EPON embedding.

Viscosity 170 - 300 mPa·s at 25 °C
 d_{20}^{20} 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 67, 361

N-Methylphenazinium methylsulfate

see 32030 Phenazine-methosulfate, page 79, 347

Methyltrioctyl ammonium chloride

see 37076 Trioctylmethylammonium chloride, page 114

4-Methylumbelliferyl-N-acetyl-β-D-glucosaminide analytical grade

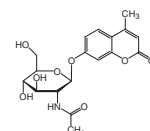
$C_{18}H_{21}NO_8$ ♦ M_r 379.4 ♦ CAS [37067-30-4]

EINECS 253-333-0 ♦ WGK 1 ♦ HS 29322090
 Storage temperature -15 °C to -25 °C

Fluorogenic substrate for N-acetyl-β-D-glucosaminidase.

References:

- Leaback, D.H. & Walker, P.-G. (1961) *Biochem. J.* **78**, 151-6
- Linko-Löppönen, S. & Mäkinen, M. (1985) *Anal. Biochem.* **148**, 50-3
- Bergmeyer, H.U. et al. (1983) *Methods of Enzymatic Analysis* (Bergmeyer, H.U. ed.) 3rd Ed., vol. **2**, 130-6



Cat.No.	Size
29662.01	50 mg
29662.02	250 mg

4-Methylumbelliferyl-β-D-glucuronide analytical grade

(MUG)

$C_{16}H_{16}O_9$ ♦ M_r 352.3 (as dry matter) ♦ CAS [6160-80-1]

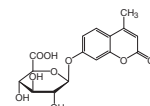
EINECS 228-186-0 ♦ WGK 1 ♦ HS 29322090
 Storage temperature -15 °C to -25 °C

Fluorogenic substrate for β-D-glucuronidase.

Assay (TLC) min. 99.0 %
 Water content (KF) max. 15.0 %

References:

- Mead, J.A.R. (1955) *Biochem. J.* **61**, 569-74



Cat.No.	Size
29667.01	50 mg
29667.02	250 mg

4-Methylumbelliferyl phosphate- Na_2 -salt research grade

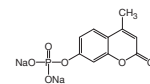
$C_{10}H_{17}O_6P \cdot Na_2$ ♦ M_r 300.1 ♦ CAS [22919-26-2]

EINECS 245-325-0 ♦ WGK 1 ♦ HS 29322985
 Storage temperature -15 °C to -25 °C

Fluorogenic substrate for alkaline and acid phosphatase (1). Substrate for surface membrane associated phosphodiesterase.

References:

- Guilbault, G.G. et al. (1968) *Anal. Lett.* **1**, 333-45



Cat.No.	Size
29670.01	100 mg
29670.02	500 mg

5-Methyluracil-2'-deoxyriboside

see 18600 2'-Deoxythymidine, page 34

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
39776.01	50 ml

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 Na_2HPO_4

15 g/l KH_2PO_4

5 g/l NH_4Cl

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

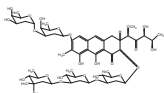
Mithramycin A pure

(Aureolic acid; Plicamycin)

$\text{C}_{52}\text{H}_{76}\text{O}_{24}$ ♦ M_r 1085.2 ♦ CAS [18378-89-7]



WARNING
H302-H332-H341 ♦ WGK 1 ♦
HS 29419000



Storage temperature +2 °C to +8 °C

Similar to chromomycin A_3 in structure and mechanism of action, inhibits RNA synthesis. Forms complexes with DNA (1). Review on structure (2). Fluorescent antibiotic used for specific staining of DNA in flow cytometry and microscopy.

Assay (HPLC, TLC) min. 95.0 %

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Thiem, J. (1984) Nachr. Chem. Tech. Lab. **32**, 6- 11
3. Sleiman, S.F. Et al. (2011) J. Neurosci. **31**, 6858-70

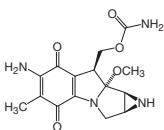
Cat.No.	Size
29803.01	2,5 mg
29803.02	10 mg

Mitomycin C lyophil. research grade

$\text{C}_{15}\text{H}_{18}\text{N}_4\text{O}_5$ ♦ M_r 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
29805.02	5 x 2 mg
29805.03	10 x 2 mg

Mitomycin C, carrier-free research grade

$\text{C}_{15}\text{H}_{18}\text{N}_4\text{O}_5$ ♦ M_r 334.3 ♦ CAS [50-07-7]



DANGER
H300-H351 ♦ GGVSE/ADR 6.1 II UN2811 ♦
IATA 6.1 II UN2811 ♦ EINECS 200-008-6 ♦ WGK 3L ♦

HS 29419000

Storage temperature +2 °C to +8 °C

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.

Assay (TLC, HPLC) min. 98.0%

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
29800.01	1 mg
29800.02	5 mg
29800.03	10 mg

Modified SPURR Embedding Kit

DANGER
H226-H302-H312-H314-H317-H332-H335 ♦
HS 39073000

Excellent embedding medium for tissues with dense structures like minerals and bones as well as for highly vacuolated plant cells and tissue with hard lignified cell walls. The original composition introduced by Spurr contained the highly toxic ERL-4206 (Vinylcyclohexene dioxide) which is replaced here by the much less toxic epoxy component ERL-4221 D.

One kit contains:

ERL-4221 D (cat. no. 21041) 250 g
NSA (cat. no. 30812) 650 g
D.E.R.® 736 (cat. no. 18247) 200 g
DMAE (cat. no. 20130) 25 g

D.E.R.® = trademark of Dow Chemical Company.

Cat.No.	Size
21050.01	1 kit

Molecular Weight Markers

see 39314 SERVA DNA Standard 1 KBp DNA ladder lyophilized, page , 230

Molecular Weight Markers for Proteins

see 39215 SERVA Unstained SDS PAGE Protein Marker 6.5 - 200 KDa, liquid mix, page , 209

Montanox® 80

see 33100 Polysorbate 80 VG, page 82, 144, 323

MOPS

see 39777 Morpholinopropane sulfonic acid, page 69, 299

MOPS

see 42561 SERVA Tris-MOPS/SDS Electrophoresis Buffer (20x), page 97, 250

Morpholinoethane sulfonic acid analytical grade

(MES)

$\text{C}_6\text{H}_{13}\text{NO}_4\text{S}$ ♦ M_r 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

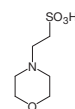
280 nm max. 0.1

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)

$C_6H_{13}NO_4S \cdot H_2O$ ♦ M_r 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:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size
29830.01	100 g
29830.02	250 g
29830.03	1 kg
29830.06	500 g

■ Morpholinopropane sulfonic acid analytical grade

(MOPS)

$C_7H_{15}NO_4S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

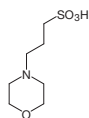
280 nm max. 0.08

pH 10 % in water 3.0 - 5.0

References:

- 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



■ Morpholinopropane sulfonic acid molecular biology grade

(MOPS)

$C_7H_{15}NO_4S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

DNase/RNase not detected. pKa 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in Wasser

260 nm max. 0.1

280 nm max. 0.08

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size
39777.01	100 g

■ MS 222

see 12396 3-Aminobenzoic acid ethyl ester-methanesulfonate, page 11

■ mTOR Inhibitor

see 34145 Rapamycin from *Streptomyces hygroscopicus*, page 87, 282, 288

■ MTT

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium
·bromide, page 37, 320, 345, 370

■ MUG

see 29667 4-Methylumbelliferyl-β-D-glucuronide, page 67, 346

■ 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:

- 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

References:

- Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size
47516.04	10 L
47516.03	50 L

■ Mycostatin

see 29870 Nystatin min. 4 400 units/mg, page 74, 282

■ 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^{3+} -form).

Assay (SDS-PAGE) min. 95.0 %

pI 7.3

Iron content ca. 0.3 %

References:

- Structure:**
Takano, T. (1977) J. Mol. Biol. **171**, 31-59

Cat.No.	Size
29895.01	100 mg

■ NAD

see 30311 β-Nicotinamide adenine dinucleotide, page 72, 342

■ NAD⁺ oxidoreductase

see 27415 Lactate dehydrogenase from porcine heart min. 300 U/mg
protein, page 62, 335

■ NADH

see 30312 β-Nicotinamide adenine dinucleotide reduced- Na_2 -salt, page 72,
342

■ Nadic Methyl anhydride

see 29452 Methyl nadic anhydride, page 67, 361

■ NADPH

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced- Na_4 -
salt, page 72, 342

■ NANA

see 10465 N-Acetylneuraminic acid, page 3

■ Naphthalene Black B

see 12310 Amido Black 10 B, page 11, 240

Naphthol-AS-D-chloroacetate pure

$C_{20}H_{16}NO_3Cl$ ♦ M_r 353.8 ♦ CAS [35245-26-2]

EINECS 252-463-5 ♦ HS 29241900

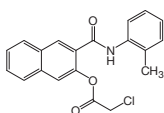
Storage temperature -15 °C to -25 °C

Histochemical substrate for esterase with improved stability.

Assay (HPLC) min. 97.0 %

References:

1. Burstone, M.S. (1957) Arch. Panthol. **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

$C_{19}H_{18}NO_5P$ ♦ M_r 371.32 ♦ CAS [1596-56-1]

H315-H319-H335 ♦ EINECS 216-480-1 ♦

HS 29241900

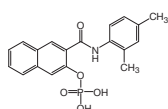
Storage temperature -15 °C to -25 °C

Selective substrate of alkaline phosphatase. Suitable dye for coupling. Fast Blue RR (1). Fast Red TR-salt (cat. no. 21317) (2).

Assay (HPLC) min. 99.0 %

References:

1. Makler, M.T. et al. (1981) Clin. Chem. **27**, 1609-13
2. Avrameas, S. (1976) Methods Enzymol. **44**, 709-17



Cat.No.	Size
30002.01	250 mg

Naphthol-AS-BI-phosphate research grade

(6-Bromo-2-phosphohydroxy-3-naphthoic acid o-anisidide)

$C_{18}H_{15}BrNO_5P$ ♦ M_r 452.2 ♦ CAS [1919-91-1]



WARNING

H315-H319-H335 ♦ EINECS 217-645-0 ♦

WGK 1 ♦ HS 29322985

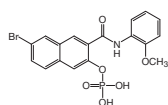
Storage temperature -15 °C to -25 °C

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
29988.01	100 mg
29988.02	500 mg
29988.03	1 g
29988.04	5 g

1-Naphthyl acetate analytical grade

(α-Naphthyl acetate; Acetic acid α-naphthyl ester)

$C_{12}H_{10}O_2$ ♦ M_r 186.21 ♦ CAS [830-81-9]

EINECS 212-599-8 ♦ HS 29153900

Storage temperature +2 °C to +8 °C

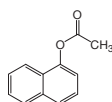
Substrate for esterases.

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)

$C_{10}H_8O_4P \cdot Na \cdot H_2O$ ♦ M_r 264.15 ♦ CAS [81012-89-7]

EINECS 220-171-7 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

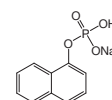
Specially purified product for assay of phosphatase activity.

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
30130.02	1 g
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 73, 222, 299, 347, 372

NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 μm, format 88 mm x 88 mm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ 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

NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 μm, format 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ 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 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 20 cm x 20 cm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ 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 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ 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.

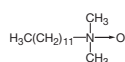
References:

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

NDSB-201 research grade

(Non-Detergent Sulfobetaine 201; PPS; 3-(1-Pyridino)-1-propane sulfonate; 1-(3-Sulfopropyl)pyridinium betain)
C₉H₁₁NO₃S ♦ 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 (titr.) min. 98.0 %

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
20762.01	50 g
20762.02	250 g

NEM

see 11331 N-Ethylmaleimide, page 44

Neodol PB

see 35796 Teepol 610, page 111

Neomycin-sulfate research grade

C₂₃H₄₆N₈O₁₃ · xH₂SO₄ ♦ M_r 614.7 (base) ♦ CAS [1405-10-3]

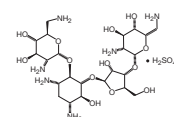


DANGER

H315-H317-H319-H334-H335-H361

d ♦ EINECS 215-773-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Ph.Eur. 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. **1**. Chichester: Horwood, pp. 1-90
2. Lancini, G. & Parenti, F. (1982) Antibiotics, Springer, New York

Cat.No.	Size
30250.01	10 g
30250.02	25 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 Protease NB from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦

EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Largely free of collagenolytic activity.

Metalloprotease suitable for tissue dissociation applications. For cell

isolation Neutral Protease NB is used in combination with purified

Collagenase NB 1 Premium Grade (cat. no. 17455) as well as

Collagenase NB 4 Standard Grade (cat. no. 17454) or

Collagenase NB 8 Broad Range (cat. no. 17456).

For research use only. If cells are intended for transplantation into humans,

Neutral Protease NB GMP Grade (cat. no. 30303) is recommended.

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

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size
30301.11	50 DMC-U
30301.12	100 DMC-U

Become a SERVA Online-Shopper!
Go to www.serva.de for ordering
24 hours per day, 7 days a week.

Neutral Protease NB GMP Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Vial contains not less than 100 DMC U of neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Largely free of collagenolytic activity.

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB GMP Grade is used in combination with purified Collagenase NB 1 GMP Grade (cat. no. 17452) or Collagenase NB 6 GMP Grade (cat. no. 17458) for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size
30303.01	≥ 100 DMC-U

Neutral Protease NB High Active Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains highly active, chromatographically purified neutral protease from *Clostridium histolyticum*.

Neutral protease activity (DMC): ≥ 5.00 U/mg.

Largely free of collagenolytic activity.

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB High Active Grade is used in combination with highly purified Collagenase NB 1 Premium Grade (cat. no. 17455), Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

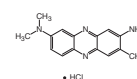
References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size
30302.02	80 DMC-U

Neutral Red pure

(Basic Red 5; Toluylene Red; 3-Amino-7-dimethylamino-2-methylphenazinium-chloride)
C₁₅H₁₇N₄Cl ♦ M_r 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.

Water (KF)	max. 15.0 %
λ _{max} .	523 nm - 533 nm
A 1 cm/0.001 % in water	
528 nm	min. 0.5
TLC	homogeneous
ε528 nm/water	min. 14 440

Cat.No.	Size
30305.01	25 g

β-Nicotinamide adenine dinucleotide analytical grade

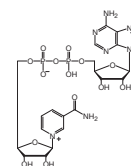
(NAD; DPN)

C₂₁H₂₇N₇O₁₄P₂ ♦ M_r 663.43 ♦ CAS [53-84-9]

EINECS 200-184-4 ♦ WGK 1 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Assay (enzym.)	min. 97.5 %
Assay from εNAD 260 nm, pH 7	min. 98.0 %
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-Na₂-salt research grade

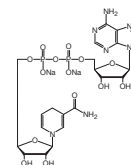
(NADH; DPNH)

C₂₁H₂₇N₇O₁₄P₂Na₂ ♦ M_r 709.4 ♦ CAS [606-68-8]

EINECS 210-123-3 ♦ WGK 1 ♦ HS 29349990

Storage temperature -15 °C to -25 °C

Assay (NADH-Na ₂ enzymatic)	min. 98.0 %
Assay (εNADH 260 nm)	min. 85.0 %
Water (KF)	max. 6.0 %



Cat.No.	Size
30312.01	250 mg
30312.02	1 g
30312.03	5 g

β-Nicotinamide adenine dinucleotide phosphate-Na₂-salt research grade

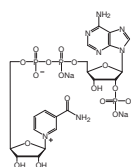
(NADP; TPN)

C₂₁H₂₆N₇O₁₇P₃Na₂ ♦ M_r 787.4 ♦ CAS [24292-60-2]

EINECS 246-129-8 ♦ WGK 1 ♦ HS 29349990

Storage temperature -15 °C to -25 °C

Assay (enzymatic)	min. 97.0 %
Water (KF)	max. 6.0 %



Cat.No.	Size
30315.02	100 mg
30315.03	250 mg
30315.04	1 g
30315.05	5 g

β-Nicotinamide adenine dinucleotide phosphate reduced-Na₄-salt analytical grade

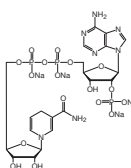
(NADPH; TPNH)

C₂₁H₂₆N₇O₁₇P₃Na₄ ♦ M_r 833.4 ♦ CAS [2646-71-1]

EINECS 220-163-3 ♦ WGK 1 ♦ HS 29349990

Storage temperature -15 °C to -25 °C

Assay (anhydrous) from εNADPH 260 nm (ε = 15 000)	min. 96.0 %
Assay of NADP-Na ₄ (enzymatic, 340 nm)	min. 97.0 %
Assay (HPLC)	min. 95.0 %
Water (KF)	max. 6.0 %



Cat.No.	Size
30316.01	25 mg
30316.02	100 mg
30316.03	500 mg

Collagenases:

see special chapter at p. 269

Ninhydrin analytical grade

(2,2-Dihydroxy-1,3-indanedione)
 $C_9H_6O_4$ ♦ M_r 178.2 ♦ CAS [485-47-2]

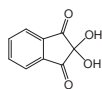


WARNING
 H302-H319-H335 ♦ EINECS 207-618-1 ♦
 WGK 2 ♦ HS 29144090

Assay (titr.) min. 99.0 %

References:

1. Schönberg, A. & Singer, E. (1978) *Tetrahedron* **34**, 1285-1300



Cat.No.	Size
30410.01	25 g
30410.02	100 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). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

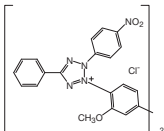
Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

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 $MgCl_2$, 100 mM Tris; pH 9.5)

Purity min. 98.0 %

References:

- Nachlas, M.M. et al. (1957) *J. Histochem. Cytochem.* **5**, 420-36
- Negi, D.S. & Stephens, R.J. (1977) *J. Histochem. Cytochem.* **25**, 149-54
- 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 73, 222, 299, 347, 372

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

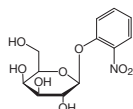
Substrate for β-D-galactosidase.

Purity (HPLC) > 99.0 %

Free nitrophenol max. 500 ppm

References:

- Levy, G.A. & Conchie, J. (1966) *Methods Enzymol.* **8**, 571-84
- Naider, F. et al. (1972) *Biochemistry* **11**, 3202-7



Cat.No.	Size
30710.01	1 g
30710.02	5 g
30710.03	25 g

4-Nitrophenyl-β-D-glucuronide research grade

$C_{12}H_{13}NO_9$ ♦ M_r 315.2 ♦ CAS [10344-94-2]

EINECS 233-753-0 ♦ WGK 1 ♦ HS 29389090

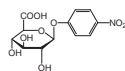
Storage temperature +2 °C to +8 °C

Substrate for β-D-glucuronidase.

Assay (HPLC) min. 99.0 %

References:

- Nimmo-Smith, R.H. (1961) *Biochim. Biophys. Acta* **50**, 166-9



Cat.No.	Size
30725.02	1 g

4-Nitrophenyl phosphate- Na_2 -salt analytical grade

(4-NPP)

$C_6H_5NO_8P \cdot Na_2 \cdot 6H_2O$ ♦ 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 (from HPLC)

min. 99.0 %

Water (KF)

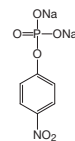
28.5 - 30.0 %

free p-Nitrophenol

max. 0.01 %

References:

- Lowry, O.H. (1957) *Methods Enzymol.* **4**, 371-2
- Bowers, G. et al. (1981) *Clin. Chem.* **27**, 135-43



Cat.No.	Size
30770.04	5 g
30770.02	25 g
30770.03	100 g

NMA

see 29452 Methylsuccinic anhydride, page 67, 361

Non-Detergent Sulfobetaine 201

see 20762 NDSB-201, page 71, 144, 248

Nonenylsuccinic anhydride pure

(NSA; ERL-4206 hardener)

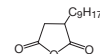
$C_{13}H_{20}O_3$ ♦ M_r 224.3 ♦ CAS [28928-97-4]



WARNING

H315-H319-H335 ♦ EINECS 242-317-8 ♦ WGK 1 ♦ HS 29171990

Especially purified for electron microscopy. Hardener component for SPURR embedding.



Cat.No.	Size
30812.01	250 ml
30812.02	1 L

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 (HPLC)

min. 90.0 %

$[\alpha]_{24}^{25} \text{ °C/D (c=2.5 in water)}$

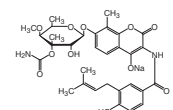
-34.0 ° to -38.0 °

MP

215 - 220 °C (dec.)

References:

- Cozzarelli, N.R. (1980) *Science* **207**, 953-60
- Staudenbauer, W.L. (1975) *J. Mol. Biol.* **96**, 201-5
- Marcu, M.G. et al. (2000) *J. Natl. Cancer Inst.* **92**, 242-8
- Marcu, M.G. et al. (2000) *J. Biol. Chem.* **275**, 37181-6
- 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 73, 361

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 > 98.0 %
pH 8.5 ± 0.1

Cat.No.	Size
39705.01	4 x 250 µl
39705.02	4 x 1 ml

Nycodenz®, 60 % (w/v) solution in water

(Nycoprep® Universal)

C₁₉H₂₆I₃N₃O₉ ♦ M_r 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:

1. Johne, R. & Muller, H. (2004) J. Virol. **78**, 930-7
2. Whiteley, A.S. et al. (2003) J. Microbiol. Meth. **54**, 257-67
3. Masuya, M. et al. (2003) Blood **101**, 2215-18
4. Schumacher, M.M. et al. (2002) J. Biol. Chem. **277**, 51033-42
5. Jadot, M. et al. (2001) Eur. J. Biochemistry **268**, 1392-99
6. Miller, K.E. & Sheetz, M.P. (2000) J. Biol. Chem. **275**, 2598-2606
7. 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 74, 322

Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 20 cm x 20 cm

HS 39219090

Nylon-Bind Membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size
42570.01	10 sheets

Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 30 cm x 3 m

HS 39219090

Nylon-Bind Membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size
42569.01	1 roll

Nystatin min. 4 400 units/mg research grade

(Fungicidin; Mycostatin)

C₄₇H₇₅NO₁₇ · 2H₂O ♦ M_r 926.13 ♦ CAS [1400-61-9]

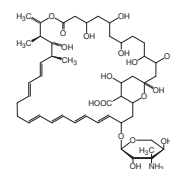
EINECS 215-749-0 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. 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:

1. Chong, C.N. et al. (1970) Tetrahedron Lett. **59**, 5145-8
2. Coutinho, A. et al. (2004). Biophys. J. **87**, 3264-76
3. Leifert, C. et al. (1991) J. Microbiol. Biotechnol. **7**, 452-69
4. Constabel, F. a. Shyluk, J.P. (1994): Plant Cell and Tissue Culture, eds. I.K. Vasil a. T.A. Thorpe; pp 3-15. Springer Netherlands
5. Banu, K.S. et al. (2001) Endocrine Pathol. **12**, 315-27
6. Wang, A. et al. (2005) Appl. Environ. Microbiol. **71**, 8397-401
7. Funkenstein, B. et al. (2006) Tissue and Cell **38**, 399-415



Cat.No.	Size
29870.01	1 g
29870.02	10 g

Octyl-POE

see 31060 n-Octylpolyoxyethylene, page 74, 144

Octyl-β-D-glucopyranoside research grade

(OGD; n-Octyl glucoside)

C₁₄H₂₈O₆ ♦ M_r 292.4 ♦ CAS [29836-26-8]

EINECS 249-887-8 ♦ HS 29389090

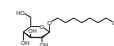
Storage temperature +2 °C to +8 °C

Non-ionic detergent. Especially suitable for the isolation and stabilization of membrane-bound enzymes, whereby in comparison to detergents used to date (Triton X-100 among others) a markedly higher yield is obtained. Easily removed by dialysis.

Assay (HPLC) min. 98.0 %
[α] 20°C/D (c=1 in methanol). -28.0 ° to -32.0 °

References:

1. Baron, C. & Thompson, T.E. (1975) Biochim. Biophys. Acta **382**, 276-85
2. Stubbs, G.W. & Litman, B.J. (1978) Biochemistry **17**, 215-9
3. Maloney, P.C. & Ambudkar, S.V. (1989) Arch. Biochem. Biophys. **269**, 1-10
4. Krah, D.L. (1989) Virology **172**, 386-90
5. Walker, N. et al. (1990) J. Cryst. Growth **100**, 168-70



Cat.No.	Size
31055.01	5 g
31055.02	250 mg
31055.03	1 g

n-Octylpolyoxyethylene research grade

(Octyl-POE)

CH₃(CH₂)₇(OCH₂CH₂)_nOH (n = 2 - 9)

HS 29389090

Storage temperature +2 °C to +8 °C

CMC: 6.6 mM. Non-ionic N-alkylpolyoxyethylene surfactant. Mixture with n = 2 - 9 ethyleneglycol units. Especially suitable for the solubilization and structural characterization of integral membrane proteins.

References:

1. Rosenbusch, J.P. et al. (1981) in: Protides of the Biological Fluids. Proceedings of the 29th Colloquium (Peeters, H., ed.) p. 171-4
2. Zulauf, M. (1985) in: Physics of Amphiphiles, Micelles, Vesicles, and Microemulsions (Degiorgio, V. & Corti, M., eds.) p. 663-73
3. Garavito, M. & Rosenbusch, J.P. (1986) in Methods Enzymol. **125**, 309-28

Cat.No.	Size
31060.01	1 g
31060.02	10 g

■ ONPG

see 30710 2-Nitrophenyl-β-D-galactopyranoside, page 73, 347

■ Oramix L30

see 27570 N-Lauroylsarcosine-Na-salt, page 62

■ Orthophosphoric-monoester phosphohydrolase (alkaline optimum)

see 32471 Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/μl), page 11, 328

■ Osmic acid

see 31253 Osmium tetroxide, page 75, 364, 368

■ Osmium (VIII) oxide

see 31253 Osmium tetroxide, page 75, 364, 368

■ Osmium tetroxide for electron microscopy

(Osmium (VIII) oxide; Osmic acid)

OsO₄ ♦ M_r 254.2 ♦ CAS [20816-12-0]



DANGER

H300-H310-H314-H330 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ 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

Assay

min. 99.9 %

Cat.No.	Size
31251.01	100 mg
31251.03	1 g

■ Osmium tetroxide 4 % solution for electron microscopy

(Osmic acid; Osmium (VIII) oxide)

OsO₄ ♦ M_r 254.2



DANGER

H302-H312-H315-H318-H332-H335 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ 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 11841 Albumin egg, page 8

■ Over Sulfated Chondroitin Sulfate (OSCS) Standard pure



DANGER

H301-H330 ♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦ HS 29389090

Storage temperature -15 °C to -25 °C *

Suitable for applications such as identification of OSCS impurities in unfractionated and fractionated heparins by CE, ¹H NMR spectroscopy and other analytical methods. Applicable to analytic method validation and system suitability test (SST). OSCS is highly purified (≥ 95 %) from impure heparin sodium.

Cat.No.	Size
31254.01	2 mg
31254.02	10 mg
31254.03	25 mg
31254.04	100 mg

■ 2-Oxetanone

see 33672 β-Propiolactone, page 84

■ Paclitaxel research grade

(Taxol®)

C₄₇H₅₁NO₁₄ ♦ M_r 853.9 ♦ CAS [33069-62-4]



WARNING

H341-H361ff ♦ HS 29399900

Storage temperature -15 °C to -25 °C

Diterpenoid isolated from the bark of the yew tree (*Taxus brevifolia*). Antitumor and antileukemic agent. Promotes the assembly of stable microtubules and inhibits the disassembly process of microtubules to tubulin. Inhibits DNA synthesis and stimulates the release of TNFα

Assay (HPLC, TLC)

min. 97.0 %

Protect from light and moisture.

References:

1. Wani, M.C. et al. (1971) Am. Chem. Soc. **93**, 2325
2. Manfredi, J.J. a. Horwitz, S.B. (1984) Pharmacol. Ther. **25**, 83-125
3. Mitsunuchi, Y. et al. (2000) Cancer Res. **60**, 5390-4
4. Donaldson, K.L. et al. (1994) Int. J. Cancer **57**, 847
5. Gut, I. et al. (2000) Arch. Toxicol. **74**, 437-46
6. Downing, K.H. (2000) Annu. Rev. Cell Dev. Biol. **16**, 89-111

Cat.No.	Size
31360.01	5 mg
31360.02	10 mg
31360.03	50 mg

■ Pancreatin NB from porcine pancreas

CAS [8049-47-6]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦ WGK 1L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Pancreatin NB is derived from porcine pancreas of known origin. It is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: ≥ 80 000 Ph. Eur. U/g

Amylolytic activity: ≥ 60 000 Ph. Eur. U/g

Proteolytic activity: ≥ 3000 Ph. Eur. U/g

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.)

The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.)

The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size
31442.01	100 g
31442.02	250 g

Albumins:

see special chapter at p. 276

■ Pancreatin NB GMP Grade from porcine pancreas

CAS [8049-47-6]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦ WGK 1L ♦ HS 35079090

Pancreatin NB GMP Grade is derived from porcine pancreas of known origin. It meets the requirements of the European Pharmacopoeia monograph for pancreas powder and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). Pancreatin is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: $\geq 80\,000$ Ph. Eur. U/gAmylolytic activity: $\geq 60\,000$ Ph. Eur. U/gProteolytic activity: $\geq 3\,000$ Ph. Eur. U/gLoss on drying: $\leq 3.0\%$ Fat content: $\leq 3.0\%$

Microbiological examination:

Total aerobic microbial count (TAMC): $\leq 10^4$ CFU/gTotal yeast and mould count (TYMC): $\leq 10^2$ CFU/gAbsence of *Escherichia coli*: must complyAbsence of *Salmonella*: must comply

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.) The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.) The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size
31445.01	250 g

■ Pancreatopeptidase E

see 20929 Elastase from porcine pancreas min. 200 U/mg, page 41, 334

■ Paraffin oil, low viscosity

see 39776 Mineral oil, page 68, 299

■ Paraffin oil, low viscosity

see 14500 Bayol F, page 16, 199

■ Parafilm™

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
90300.02	6 rolls
90300.03	12 rolls

■ Parafilm™

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
90310.03	12 boxes

■ Paraformaldehyde pure

(Polyoxymethylene)

 $(\text{CH}_2\text{O})_n$ ♦ M_r (30.0)_n ♦ 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 29126000

Assay (titr.)

min. 95.0 %

Cat.No.	Size
31628.01	100 g
31628.02	500 g

■ Parafuchsin research grade

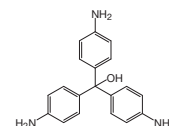
(Basic Red 9; Magenta O; Pararosanine)

C.I.42500 ♦ C₁₉H₁₈N₃⁺Cl⁻ ♦ M_r 323.82 ♦ CAS [569-61-9]

DANGER

H350 ♦ Carc. 1B ♦ EG-Index 611-031-00-X ♦

EINECS 209-321-2 ♦ WGK 3L ♦ HS 32041300



Homogeneous in TLC (1). Indicator pH 1.0 - 3.1.

Suitable for aldehyde fuchsin staining and Schiff's reagent. For staining elastic fibres (2). For formaldehyde determination (3).

 λ_{max} 0.003 %/l in EtOH:H₂O/1:1 543 - 549 nm $A_{1\text{ cm}/\lambda_{\text{max}}}$ 0.0003 % inEtOH:H₂O/1:1

min. 0.788

 $\epsilon_{\lambda_{\text{max}}}$ 0.0003 % inEtOH:H₂O / 1:1

min. 85 000

Water (K.F.)

max. 10.0 %

References:

1. Nettleton, G.S. & Martin A.W. (1973) Stain Technol. **54**, 213-6
2. Mowry, R.W. (1980) Stain Technol. **55**, 91-103
3. Georgiou, P.E. et al. (1983) Anal. Chem. **55**, 571-4

Cat.No.	Size
31627.01	5 g
31627.02	25 g

■ Pararosanine

see 31627 Parafuchsin, page 76

■ PBS

see 47302 Buffer substance Dulbecco's, page 21, 319, 365

■ PDT disulfonate

see 21326 Ferrozine®, page 44

■ PEFABLOC® SC

([4-(2-Aminoethyl)benzenesulfonyl]fluoride-HCl])

C₈H₁₀NSO₂F·HCl ♦ M_r 239.7 ♦ CAS [30827-99-7]

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

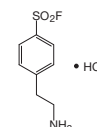
buffers; LD₅₀ (oral) 2800 mg/kg. Broad specificity for serine proteases.

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

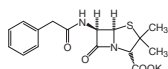
■ Penicillin G-K-salt research grade

(Benzylpenicillin potassium)

$C_{16}H_{17}N_2O_4S \cdot K$ ♦ M_r 372.5 ♦ CAS [113-98-4]

EINECS 204-038-0 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C



Ph. Eur. 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

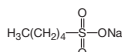
Cat.No.	Size
31749.04	25 g
31749.03	100 g

■ Pentanesulfonic acid-Na-salt research grade

$C_5H_{11}SO_3 \cdot Na \cdot H_2O$ ♦ M_r 192.2 ♦ CAS [22767-49-3]

EINECS 245-208-4 ♦ HS 29041000

Assay (titr.) min. 99.0 %



Cat.No.	Size
31812.02	25 g

■ Pepsin NB Technical Grade from porcine gastric mucosa granulate, vacuum dried

(Pepsin A)

EC 3.4.23.1 ♦ M_r ca. 35 000 ♦ 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 +2 °C to +8 °C

Pepsin NB Technical Grade is derived from porcine gastric mucosa. It contains sodium benzoate (≤ 0.46 % (w/w)). Pepsin is a protease with a broad specificity and cleaves preferably peptide bonds between hydrophobic and aromatic amino acids and is active in acid medium. Pepsin NB Technical Grade is suitable for applications such as production of F(ab')₂ fragments from antibodies.

Specification:

Proteinase activity: ≥ 0.5 Ph. Eur. U/mg

Unit definition: Proteinase activity (Ph. Eur.)

The activity of pepsin powder is determined by comparing the quantity of peptides, non-precipitable by trichloroacetic acid solution R and assayed using the phosphomolybdotungstic reagent R, which are released per minute from a substrate of haemoglobin solution R, with the quantity of such peptides released by pepsin powder BRP from the same substrate in the same conditions.

Cat.No.	Size
31825.01	100 g

■ Pepsin porcine ca. 15 milliAnson units/mg 2xcryst. lyophil.

(Pepsin A)

EC 3.4.23.1 ♦ M_r 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 μ mole 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^{hb}/mg („Pepsin-Unit“ according to Anson (1, 2). Expressed in millimole tyrosine, therefore 1 PU^{hb} = 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)

$C_{34}H_{63}N_5O_9$ ♦ M_r 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
52682.04	100 mg

■ Peptone acid hydrolysate from vegetable

HS 35040090

Peptone acid hydrolysate is prepared by acid hydrolysis of vegetable proteins and is suitable for use in culture media requiring an amino acid mixture. Its growth promotional characteristics match with casein acid hydrolysate.

It can be used for preparing antibiotic sensitivity test media, in media requiring quantitative addition of tryptophan and in vaccine preparation media as a source of high concentration of free amino acids.

Total nitrogen (TN) min. 6.0 %
 Amino nitrogen min. 3.0 %
 Loss on drying max. 5.0 %
 Residue on ignition max. 44 %
 pH (1 % solution) 5.5 – 7.5
 Sodium chloride max. 4.0 %

Cat.No.	Size
48668.01	250 g
48668.02	1 kg

Ion Exchange Media:
 see special chapter at p. 375

■ **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 from casein** pancreatic

HS 35040090

High quality source of peptides and amino acids produced by pancreatic digestion of casein. Suitable as nutrient for laboratory media and industrial fermentation and to support growth of fastidious microorganisms.

Total nitrogen (TN)	min. 12.0 %
Loss on drying	max. 5.0 %
Ash	max. 15.0 %
pH (1 % solution)	7.0 - 7.4
Sodium chloride	max. 5.0 %

Cat.No.	Size
48661.01	250 g
48661.02	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	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
48605.01	250 g
48605.02	1 kg

■ **Peptone from lactalbumin** pancreatic(Edamin S)
HS 35040090

Readily soluble pancreatic digest of lactalbumin recommended for production of Lactobacilli and other fermentations.

Total nitrogen	11.0 - 13.0 %
Amino nitrogen	4.5 - 6.5 %
Solubility (6 % in water)	complete
pH (6 % in water)	ca. 6.7 - 7.7

Cat.No.	Size
48625.06	250 g
48625.02	1 kg
48625.03	5 kg

■ **Peptone from meat** enzymatic

HS 35040090

Prepared by enzymatic digestion of selected fresh lean meat obtained from healthy animals. Used in general purpose culture media for routine cultivation of a variety of microorganisms and as well in large scale cultivation of microorganisms used for antibiotic, enzyme and vitamin production.

Total nitrogen (TN)	min. 11.5 %
Amino nitrogen	min. 3.0 %
Loss on drying	max. 5.0 %
Ash	max. 15.0 %
pH (1 % solution)	6.0 - 7.0
Sodium chloride	max. 6.0 %

Cat.No.	Size
48663.01	250 g
48663.02	1 kg

■ **Peptone from meat** pancreatic

HS 35040090

Ph. Eur. 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
48619.01	250 g
48619.02	1 kg

■ **Peptone from soybean** enzymatic

HS 35040090

Produced by controlled enzymatic hydrolysis of soybean meal. Contains a mix of peptides and free amino acids. Peptide average molecular weight: ca. 500 Dalton. For bacteriology and industrial fermentation.

Total nitrogen	8.5 - 10.2 %
Amino nitrogen	2.5 - 3.5 %
AN/TN x 100	26 - 36
Solubility (5 % in water)	complete
pH (5 % solution)	6.6 - 7.6

Cat.No.	Size
48640.02	250 g
48640.03	1 kg

■ **Peptone from vegetable III**

HS 35040090

Peptone from vegetable III is an enzymatic hydrolysate of specially selected vegetable proteins and is recommended for use in bacteriological media. It can successfully replace meat peptone like e.g. peptone from meat, pancreatic (cat. no. 48619).

It is recommended for use in general purpose culture media for routine cultivation of a variety of microorganisms. It is as well suitable for mass scale cultivation of microorganisms for antibiotics, enzymes, vitamins production or for other similar products of microbial origin.

Total nitrogen (TN)	min. 10.0 %
Amino nitrogen	min. 3.5 %
Loss on drying	max. 4.5 %
Residue on ignition	max. 10.0 %
pH (1 % solution)	6.3 - 7.3
Sodium chloride	max. 4.5 %

Cat.No.	Size
48666.01	250 g
48666.02	1 kg

Products for Cell Culture:
see Special Chapter at p. 310

■ Peroxidase from horseradish min. 1000 U/mg lyophil.

(POD; HRP; Donor: hydrogen-peroxide oxidoreductase)
EC 1.11.1.7 ♦ M_r 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. Meitlani, 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

■ PGM Anode Buffer

HS 38220000

Contains 0.60 g DL-Threonine. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size
36370.01	600 mg

■ PGM Cathode Buffer

HS 38220000

Contains 0.56 g L-Histidine Base. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size
24835.01	560 mg

■ 1,10-Phenanthroline analytical grade

(o-Phenanthroline)
C₁₂H₈N₂ · H₂O ♦ M_r 198.2 ♦ CAS [5144-89-8]



DANGER
H301-H400-H410 ♦ EG-Index 613-092-00-8
♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦
EINECS 200-629-2 ♦ WGK 3 ♦ HS 29339980



For the determination of iron in heme compounds. Metalloprotease inhibitor.

Assay (Tit.) min. 99.0 %

References:

1. Cameron, B.F. (1970) Anal. Biochem. 35, 515-7

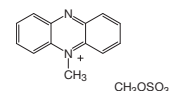
Cat.No.	Size
32010.01	5 g
32010.02	25 g

■ Phenazine-methosulfate pure

(PMS; N-Methylphenazinium methylsulfate)
C₁₃H₁₁N₂ · CH₃SO₃ ♦ M_r 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 analytical grade

(Hydroxybenzene)
C₆H₆O ♦ M_r 94.11 ♦ CAS [108-95-2]



DANGER
H301-H311-H314-H331-H341-H373 ♦ Muta. 2
♦ MAK/TRK 7.8 mg/m³; 2 ml/m³ ♦ EG-
Index 604-001-00-2 ♦ GGVSE/ADR 6.1 II UN1671 ♦ IATA 6.1 II UN1671 ♦
EINECS 203-632-7 ♦ WGK 2L ♦ HS 29071100



USP, Ph.Eur. For separation of proteins during purification of nucleic acids.

Assay (titr.) 99.0 - 100.5 %

Cat.No.	Size
32046.02	500 g

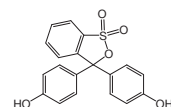
■ Phenol Red research grade

(Phenylsulfonphthalein)
C₁₉H₁₄O₅S ♦ M_r 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
32095.02	25 g

■ Phenolphthalein diphosphate-Na₄-salt research grade

C₂₀H₁₂O₁₀P₂ · Na₄ ♦ M_r 566.20 ♦ CAS [68807-90-9]

EINECS 272-326-3 ♦ HS 29322985

Storage temperature -15 °C to -25 °C *

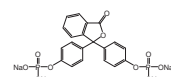
Substrate for phosphatase.

Assay (titr.) min. 95.0 %

References:

1. Comfort, D. & Campbell, D.J. (1966) Clin. Chim. Acta 14, 263-9

Cat.No.	Size
32050.01	10 g



■ L-Phenylalanine cell culture grade

(Phe; L-2-Amino-3-phenylpropionic acid)
C₉H₁₁NO₂ ♦ M_r 165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
47213.01	100 g
47213.02	500 g

■ **L-Phenylalanine** research grade

(Phe; L-2-Amino-3-phenylpropionic acid)

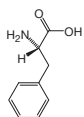
 $C_9H_9NO_2$ ♦ M_r 165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size
32191.01	25 g
32191.02	100 g
32191.03	1 kg

■ **Phenylmethylsulfonyl fluoride** research grade(PMSF; Benzylsulfonyl fluoride; α -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 cholinesterase. Less toxic than diisopropylfluorophosphate (2). Inactivation of PMSF in buffer (3).

Assay (GC)

min. 99.0 %

MP

90 - 94 °C

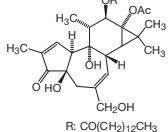
References:

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
32395.04	100 g

■ **Phorbol (12-myristoyl-13-acetyl)** analytical grade

(PMA; TPA; 12-O-Tetradecanoylphorbol-13-acetate)

 $C_{36}H_{56}O_8$ ♦ M_r 616.8 ♦ CAS [16561-29-8]

DANGER

H300-H310-H330 ♦ MAK/TRK 10 ml/

m³, 50 mg/m³ for chloroform ♦ GGVSE/

ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦ WGK 3 ♦

HS 29159000

Storage temperature -15 °C to -25 °C

Antileukemic agent (1). Activates protein kinase C (2). Strong inducer of tumor formation, favorite derivative for *in vitro* studies, interferon inducer, along with phytohemagglutinin (3).

Purity (TLC)

min. 99.0 %

References:

1. Weinberg, J.B. (1981) Science **213**, 665-7
2. Skoglund, G. et al. (1985) Eur. J. Biochem. **148**, 407-12
3. Yip, Y.K. et al. (1981) Proc. Natl. Acad. Sci. USA **78**, 1601-5

Cat.No.	Size
32496.01	1 mg

■ **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 extract.

Cat.No.	Size
39050.01	1 vial
39050.02	5 vials
39050.03	10 vials

■ **Phosphatase-Inhibitor-Mix II, solution**

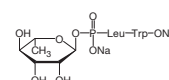
HS 38220000

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, β -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

■ **Phosphoramidon** research grade([N-(α -Rhamnopyranosyloxyhydroxyphosphinyl)-L-Leu-L-Trp-Na·2H₂O]) $C_{23}H_{32}N_2O_{10}P\cdot Na_2$ ♦ 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

■ **Phosphotungstic acid hydrate** analytical grade $H_3[P(W_3O_{10})_4]\cdot xH_2O$ ♦ M_r 2880.2 (anhydrous) ♦ CAS [12501-23-4]

DANGER

H314 ♦ GGVSE/ADR 8 III UN3260 ♦ IATA 8 III UN3260 ♦

EINECS 215-682-7 ♦ WGK 2L ♦ HS 28429080

Used for staining of cell specimens and negative staining in electron microscopy.

Chloride

max. 0.005 %

Sulfate

max. 0.01 %

Lead

max. 0.002 %

Cat.No.	Size
32757.01	25 g
32757.02	100 g

■ **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). For amino acids (3, 4). 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

Buffering substance pK_a 20 = 6.8.

Assay (titr.) min. 99.0 %

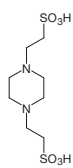
A 1 cm/2 % in NaOH

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
32981.02	250 g

■ **Piperazine-N,N'-bis(2-ethane sulfonic acid)**

molecular biology grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

$C_8H_{18}N_2O_6S_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

EINECS 227-057-6 ♦ HS 29335995

DNase/RNase not detected. Buffering substance pK_a 20 = 6.8.

Assay (titr.) min. 99.0 %

Heavy metals (Pb) max. 0.0005 %

Cat.No.	Size
39779.01	100 g

■ **PIPES**

see 32981 Piperazine-N,N'-bis(2-ethane sulfonic acid), page 81, 356, 366

■ **Plicamycin**

see 29803 Mithramycin A, page 68, 286, 372

■ **PMA**

see 32496 Phorbol (12-myristoyl-13-acetyl), page 80, 322

■ **PMS**

see 32030 Phenazine-methosulfate, page 79, 347

■ **PMSF**

see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

■ **Poly-D-lysine 70 000-HBr** research grade

$(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r 70 000 - 150 000 ♦ CAS [27964-99-4]

HS 35040090

Storage temperature -15 °C to -25 °C

Hygroscopic. „Attachment factor“ in cell culture and proteinase inhibitor.

Cat.No.	Size
33224.01	25 mg

■ **Poly-L-lysine 70 000-HBr** research grade

$(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r ca. 70 000 - 150 000 ♦ CAS [25988-63-0]

WGK 1 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Cat.No.	Size
33225.01	25 mg

■ **Polyamide-6-powder** research grade

(Polycaprolactam; Perlon; Nylon-6)

HS 39081000

For column chromatography.

Cat.No.	Size
33143.03	25 g
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 1500** solution analytical grade, sterile filtered

(PEG 1500)

M_r ca. 1500

WGK 1L ♦ HS 34042000

Storage temperature +2 °C to +8 °C

Clear sterile filtered solution of PEG 1500 (50 % w/v) in 4 ml of HEPES-buffer (75 mmol/l), pH 8.0. Packed under nitrogen. Free of aldehydes and peroxides, free from Ca^{2+} . Biologically evaluated for high fusion efficiency. Tested as reagent for the fusion of myeloma cells with spleen cells and other hybridoma cells.

Cat.No.	Size
33123.01	4 ml
33123.02	4 x 4 ml

■ **Polyethylene glycol 4000**

(PEG 4000; Macrogol 4000; Macrogol)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. 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**

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. 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

Heavy metals (Pb) max. 5 ppm

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.

Mean mol mass 5400 - 6600

Heavy metals (as Pb) max. 5 ppm

Cat.No.	Size
39778.01	500 g

■ Polyethylene glycol 20 000

(PEG 20000; Macrogol 20000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. 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
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size
33138.01	500 g
33138.02	5 kg

■ Polyethylene glycol 40 000

(PEG 35000; Macrogol 35000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. 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.

(Polymyxin P)



WARNING
H302-H411 ♦ GGVSE/ADR 9 III UN3082 ♦ IATA 9 III UN3082
♦ WGK 2 ♦ HS 39019090

Non-volatile matter 48.0 - 52.0 %

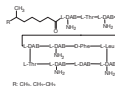
Cat.No.	Size
33141.03	100 ml
33141.04	500 ml

■ Polymyxin-B-sulfate research grade

(Aerosporin)
CAS [1405-20-5]



WARNING
H302 ♦ HS 38210000
Storage temperature +2 °C to +8 °C



Ph. Eur. 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. a. 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

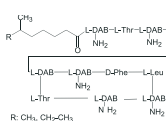
■ Polymyxin-B-sulfate solution sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

Activity 10,000 IU/ml.

Cat.No.	Size
47975.01	25 ml



■ Polymyxin E sulfate

see 17420 Colistin sulfate, page 28, 281

■ Polyoxyethylene monolauryl ether

see 15230 Brij 35™, page 19, 142

■ Polysorbate 20

see 39796 Tween® 20, page 119, 303

■ Polysorbate 80

see 37475 Tween® 80, page 119, 146, 325

■ Polysorbate 80 VG for biochemistry

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate)
 M_n 1310 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ HS 34021300

Suitable for cell culture, enzymology, membrane research and other biochemical applications. The fatty acids of this product are purely of vegetable origin.

d25 °C 1.06 - 1.09
HLB 15.0
CMC 1×10^{-5} mol/L
Hydroxyl number 65 - 80 mg KOH/g
Saponification number 45 - 55 mg KOH/g

Cat.No.	Size
33100.01	500 g
33100.02	5 kg

■ Polysorbate 80 VG

(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

Ph. Eur., USP/NF. The fatty acids of this detergent are of vegetable origin.

HLB 15.0
CMC 1×10^{-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
33116.02	5 kg

■ Polyvinylpyrrolidone 15 pract.

M_n ca. 10000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Intrinsic viscosity (K-value) ca. 15
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size
33422.01	100 g
33422.02	1 kg

■ Polyvinylpyrrolidone 25 pract.

(Collidon; Plasdone)

M_n ca. 29000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Ph. Eur., USP.

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** molecular biology grade

CAS [9003-39-8]

WGK 1 ♦ HS 39059990

DNase/RNase not detected. Suitable for preparation of Denhardt's Solution for Southern and Northern Blots.

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size
39609.01	100 g
39609.02	500 g

■ **Polyvinylpyrrolidone 90** pract.

M_r ca. 1 100000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size
33410.01	100 g
33410.02	1 kg

■ **Polyvinylsulfate-K-salt** pure

(C₂H₃O₄S)_n ♦ M_r (162.21)_n, n ≥ 1500 ♦ CAS [26837-42-3]

WGK 1 ♦ HS 39059990

Esterification degree min. 90 %.

Cat.No.	Size
33426.02	2,5 g
33426.03	10 g

■ **Ponceau S**

(Acid Red 112; Fast Ponceau 2B)

C.I.27195 ♦ C₂₂H₁₂N₄O₁₃S₄Na₄ ♦ M_r 760.61 ♦

CAS [6226-79-5]



WARNING

H315-H319-H335 ♦ EINECS 228-319-2 ♦ WGK 2L

♦ HS 29270000

λ_{max}. 0.001 % in water

Water (KF)

A 1 cm/0.001 % in water/λ max.

ε_λmax in water

TLC

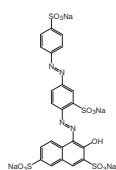
517- 523 nm

max. 15.0 %

min. 0.355

min. 27 000

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

0.2 % in 3 % TCA. For protein staining.

Cat.No.	Size
33427.01	500 ml

■ **Potassium acetate** molecular biology grade

C₂H₃O₂K ♦ M_r 98.14 ♦ CAS [127-08-2]

EINECS 204-822-2 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected.

Assay (titr.)

Heavy metals (as Pb)

pH 5 % in water

min 99.0 %

max. 0.001 %

7.5 - 9.0

Cat.No.	Size
39567.01	100 g
39567.02	500 g

■ **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.)

Heavy metals (as Pb)

Fe

min. 99.0 %

max. 10 ppm

max. 20 ppm

Cat.No.	Size
39768.01	500 g
39768.02	1 kg

■ **Potassium chloride** research grade

KCl ♦ M_r 74.55 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

Ph. Eur.

Assay (titr.)

Heavy metals (Pb)

99.0 - 100.5 %

max. 10 ppm

Cat.No.	Size
26868.02	1 kg

■ **Potassium dihydrogen phosphate anhydrous**

analytical grade

(Potassium phosphate dibasic (sec. potassium phosphate); Potassium phosphate monobasic (prim. potassium phosphate))

KH₂PO₄ ♦ 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.)

pH 5 % in water

Heavy metals (Pb)

Nitrogen (N)

min. 99.0 %

4.1 - 4.5

max. 10 ppm

max. 10 ppm

Cat.No.	Size
26870.01	500 g

■ **di-Potassium hydrogen phosphate** molecular biology grade

(sec. Potassium phosphate; Potassium phosphate dibasic)

K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

DNase/RNase not detected

Assay (titr.)

pH 5 % in water

Heavy metals (Pb)

min. 99.0 %

8.7 - 9.4

max. 10 ppm

Cat.No.	Size
39767.01	250 g

■ **di-Potassium hydrogen phosphate anhydrous**

analytical grade

(sec. Potassium phosphate; Potassium phosphate dibasic (sec. potassium phosphate))

K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Assay

pH 5 % in water

Heavy metals (Pb)

min. 99.0 %

8.7 - 9.3

max. 10 ppm

Cat.No.	Size
26887.01	500 g

■ **Precast Gels for IEF**

see SERVLYT™ PRECOTES™, page 104, 191

■ **PRECOTES™**

see SERVLYT™ PRECOTES™, page 104, 191

■ **4-Pregnene-3,20-dione**

see 33530 Progesterone, page 84, 323

■ **PreNets™**

see SERVLYT™ PreNets™, page 104, 192

■ Progesterone analytical grade

(4-Pregnene-3,20-dione)
 $C_{21}H_{30}O_2$ ♦ M_r 314.45 ♦ CAS [57-83-0]



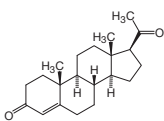
DANGER
 H351-H360Fd-H362 ♦ Carc. 2, Repr. 1A ♦
 EINECS 200-350-6 ♦ WGK 2 ♦ HS 29372900

Ph. Eur.

Assay

97.0 - 103.0 %

Cat.No.	Size
33530.03	25 g



■ L-Proline research grade

(Pro; 2-Pyrrolidinecarboxylic acid)
 $C_5H_9NO_2$ ♦ M_r 115.13 ♦ CAS [147-85-3]

EINECS 205-702-2 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)

98.5 - 101.0 %

Heavy metals (Pb)

max. 10 ppm

Cat.No.	Size
33582.02	50 g
33582.03	250 g



■ Pronase E from *Streptomyces griseus* min.

6.0 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

For structural analysis of proteins (1, 2). Suitable for preparation of bacteriophage lambda DNA (3).

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

■ Propidium iodide research grade

(3,8-Diamino-5-(3-[diethylmethylammonio]propyl)-6-phenylphenanthridinium diiodide)
 $C_{27}H_{34}N_4^{2+}2I^-$ ♦ M_r 668.4 ♦ CAS [25535-16-4]



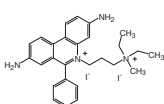
DANGER
 H301-H315-H319-H331-H335-H
 340 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦
 EINECS 247-081-0 ♦ WGK 2 ♦ HS 29239000
 Storage temperature +2 °C to +8 °C

For selective labeling 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
33671.02	100 mg



■ β-Propiolactone research grade

(2-Oxetanone; 3-Hydroxypropionic acid lactone)
 $C_3H_4O_2$ ♦ M_r 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_3H_6O ♦ M_r 58.08 ♦ CAS [75-56-9]



DANGER
 H224-H302-H312-H315-H319-H332-H335-H
 340-H350 ♦ Muta. 1B, Carc. 1B ♦ MAK/TRK 6

mg/m³, 2.5 ml/m³ ♦ EG-Index 603-055-00-4 ♦ GGVSE/ADR 3 I UN1280 ♦
 IATA 3 I UN1280 ♦ EINECS 200-879-2 ♦ WGK 3L ♦ HS 29102000

Purity (GC)

min. 99.9 %

Cat.No.	Size
33715.03	500 ml



■ 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

■ 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

■ Proteasome Inhibitor MG-115

(Carbobenzoxy-L-leucyl-L-leucyl-L-norvalinal; Z-Leu-Leu-Nva-H (aldehyde))
 $C_{25}H_{39}N_3O_5$ ♦ M_r 461.59

HS 29420000
Storage temperature -15 °C to -25 °C

Potent reversible Proteasome inhibitor.

Purity (HPLC) min. 90.0 %

References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Rock, K.L. et al. (1994) Cell **78**, 761
3. Vinitzky, A. et al. (1992) Biochemistry **31**, 9421
4. Palombella, V.J. et al. (1994) Cell **78**, 773

Cat.No.	Size
33767.01	1 mg
33767.02	5 mg

■ Proteasome Inhibitor MG-132

(Carbobenzoxy-L-leucyl-L-leucyl-leucinal; Z-Leu-Leu-Leu-H (aldehyde))
 $C_{26}H_{41}N_3O_5$ ♦ M_r 475.62 ♦ CAS [133407-82-6]

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
33766.01	1 mg
33766.02	5 mg

■ Protein Concentration

see SERVA BluePrep Kits, page 124

■ Protein Desalting

see CentriPure/CentriSpin Kits, page 152

Products for Microscopy:
see special chapter at p. 359

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 12.400 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 12 400

Cat.No.	Size
39064.01	1 kit

Protein Standards (Markers) for IEF

see 39212 IEF Marker 3-10, Liquid Mix, page , 198

Protein Test Mixture 4 for SDS PAGE



(SDS Gel Electrophoresis Markers)

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 12 500
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 _r 97 400
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Cytochrome C	M _r 12 500
Trypsin inhibitor (bovine lung)	M _r 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

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/ml, ≥ 600 U/ml

EC 3.4.21.14 ♦ M_r M_r 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: AEBF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size
33755.01	1 ml
33755.02	5 ml
33755.03	10 ml

■ Proteinase K from *Tritirachium album*

min. 8 DMC-U/mg lyophil.

EC 3.4.21.14 ♦ M_r 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

Serin 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 DMC-unit catalyzes the hydrolysis of 1 μmole dimethyl casein per minute at 25 °C, pH 7.0; the liberated amino groups are determined with 2,4,6-trinitrobenzene sulfonic acid (2).

Activities in other units ca. 30 milliAnson-units.

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al. (1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. 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

■ Pteroylmonoglutamic acid

see 21700 Folic acid, page 46, 320

■ Puromycin-2HCl research grade

C₂₂H₂₉N₇O₅·2HCl ♦ M_r 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_r 471.5)

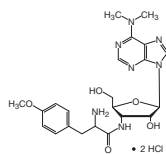
86 %. Inhibitor of protein biosynthesis. Causes premature termination of the nascent polypeptide chain by its action as aminoacyl-t-RNA analog (in procaryotes and eucaryotes).

Purity (HPLC, TLC) min. 98.0 %

References:

1. Vazquez, D. (1974) FEBS Lett. **40**, 63-84
2. Claeysens, S. et al. (1993) FEBS Lett. **315**, 7

Cat.No.	Size
33835.01	10 mg
33835.02	50 mg
33835.03	250 mg



■ Pyridoxal-5-phosphate analytical grade

(Codecarboxylase; Pyridoxal-5-phosphoric acid)

C₈H₁₀NO₆P·H₂O ♦ M_r 265.2 ♦ CAS [41468-25-1]

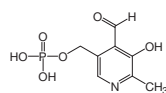
HS 29362500

Storage temperature +2 °C to +8 °C

Assay (anhydrous, HPLC) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
33940.02	5 g
33940.03	25 g



■ Pyridoxine-HCl research grade

(Pyridoxol-HCl; Vitamin B₆)

C₈H₁₁NO₃·HCl ♦ M_r 205.6 ♦ CAS [58-56-0]

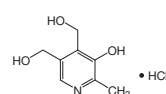
EINECS 200-386-2 ♦ WGK 1 ♦ HS 29362500

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 20 ppm

Cat.No.	Size
33990.01	25 g
33990.02	100 g



■ Pyridoxol-HCl

see 33990 Pyridoxine-HCl, page 87, 323

■ 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 84

■ Pyruvic acid-Na-salt research grade

(Sodium pyruvate; Brenztraubensäure-Na)

C₃H₃O₃·Na ♦ M_r 110.04 ♦ CAS [113-24-6]

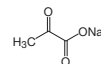
EINECS 204-024-4 ♦ WGK 1 ♦ HS 29183000

Assay (titr.)

min. 99.0 %

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size
15220.01	25 g
15220.03	100 g
15220.04	500 g

■ α-D-Raffinose research grade

(α-D-Galactopyranosyl-(1 → 6)-α-D-glucopyranosyl-

(1 → 2)-β-D-fructofuranoside)

C₁₈H₃₂O₁₆·5H₂O ♦ M_r 594.56 ♦ CAS [17629-30-0]

EINECS 208-146-9 ♦ WGK 1 ♦ HS 29400000

For bacteriology.

Purity (HPLC)

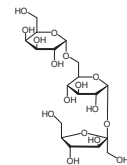
min. 98.0 %

MP

78 - 82 °C

[α]_D20°C/D (c=10 in water)

+103.0° to +107.0 °



Cat.No.	Size
34140.02	100 g
34140.03	500 g

■ Ralufon DL

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

■ RAPA

see 34145 Rapamycin from *Streptomyces hygroscopicus*, page 87, 282, 288

■ Rapamycin from *Streptomyces hygroscopicus* research grade

(RAPA; Sirolimus; mTOR Inhibitor)

C₅₁H₇₉NO₁₃ ♦ M_r 914.2 ♦ CAS [53123-88-9]

WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic which acts by selectively blocking the transcriptional activation of cytokines, thereby inhibiting cytokine production. It is bioactive only when bound to immunophilins. Potent immunosuppressant, possesses both antifungal and antineoplastic properties.

Assay (HPLC, TLC) min. 97.0 %

References:

1. Seghal, S.N. et al. (1975) J. Antibiot. **28**, 727
2. Weyrich, A.S. et al. (1998) PNAS **95**, 5556-61
3. Guba, M. et al. (2002) Nature Medicine **8**, 128-35
4. Jacinto, E. et al. (2004) Nature Cell Biol. **6**, 1122-8
5. Saiardi, A. et al. (2005) PNAS **102**, 1911-4
6. Xie, M.W. et al. (2005) PNAS **102**, 7215-20
7. Homberger, T.A. a. Shu Chien (2006) J. Cell. Biochem. **97**, 1207-16
8. Mizushima, N. et al. (2008) Nature **451**, 1069-75
9. Levine, B. a. Kroemer, G. (2009) Cell Death and Differentiation **16**, 1-2

Cat.No.	Size
34145.01	1 mg

■ **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 = registered trademarks of Huntsman Advanced Materials Europe

Cat.No.	Size
13825.01	250 g
13825.02	1 kg

■ **Resazurin-Na-salt analytical grade**

(Diazoresorcinol)

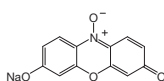
C₁₂H₆NO₄·Na ♦ M_r 251.2 ♦ CAS [62758-13-8]

WARNING

H302-H315-H335 ♦ EINECS 263-718-5 ♦ HS 29349990

Indicator pH 3.8 - 6.5. Redox indicator.

Cat.No.	Size
34226.02	5 g

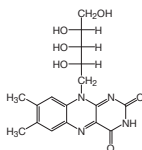
■ **Riboflavin research grade**(Lactoflavin; Vitamin B₂)C₁₇H₂₀N₄O₆ ♦ M_r 376.4 ♦ CAS [83-88-5]

EINECS 201-507-1 ♦ WGK - ♦ HS 29362300

Ph. Eur.

Assay (UV) 97.0 - 103.0 %

Cat.No.	Size
34350.02	25 g

■ **Ribonuclease A from bovine pancreas min. 80 Kunitz units/mg lyophil.**

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligo-nucleotidohydrolase)

EC 3.1.27.5 ♦ M_r 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_r 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

■ **D-Ribose analytical grade**C₅H₁₀O₅ ♦ M_r 150.1 ♦ CAS [50-69-1]

EINECS 200-059-4 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC)

[α]_D²⁰ C/D (c=4 in water)

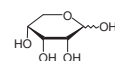
Heavy metals (Pb)

min. 99.0 %

-20 ± 2 °

max. 10 ppm

Cat.No.	Size
34460.02	50 g
34460.04	10 g

■ **Rifampicin research grade**

(Rifampin „Lepetit“; Rifamycin-AMP)

C₄₃H₅₈N₄O₁₂ ♦ M_r 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.

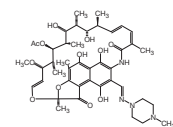
Assay

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. Vilchez, S. et al. (2000) J. Bacteriol. **182**, 91-9
4. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7
5. Freiberg, C. et al. (2004) Current Opinion in Microbiology **7**, 451-9

Cat.No.	Size
34514.01	1 g
34514.02	5 g

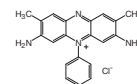
■ **Roller for Electrophoresis**

HS 90330000

Cat.No.	Size
42991.01	1 piece

■ **Safranin O pure**

(Basic Red 2; 3,7-Diamino-2,8-dimethyl-5-phenyl-phenazinium-chloride; Safranin T)

C₁₅H₁₀N₄Cl ♦ M_r 350.9 ♦ CAS [477-73-6]

WARNING

H315-H319-H335 ♦ EINECS 207-518-8 ♦ WGK 2L ♦ HS 32041300

Dye for microscopy.

λ_{max}. (0.001 % in water) 518 - 522 nm
A 1 cm (λ_{max}. /0.001 % in water) min. 0.9
ε λ_{max}. (in water) min. 31 580
Water max. 15.0 %

References:

1. Lillie, E.D. (ed.) H.J. Conn's Biological Stains, 9th ed., p. 385-7

Cat.No.	Size
34598.01	10 g

D-Salicin research grade

(Salicylalcohol β-D-glucoside; 2-[Hydroxymethyl]phenyl-β-D-glucopyranoside)

C₁₃H₁₈O₇ ♦ M_r 286.3 ♦ CAS [138-52-3]

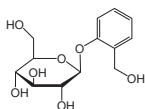
EINECS 205-331-6 ♦ HS 29389090

For bacteriology. Substrate for β-glucosidase.

Assay (HPLC)	min. 99.0 %
MP	200 - 202 °C
[α] 20 °C/D (c=5 in water)	-59.5° to -63.5 °
Loss on drying	max. 0.5 %

References:

1. Baruah, P. & Swain, T. (1957) Biochem. J. **66**, 321-3



Cat.No.	Size
34600.01	5 g

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 MgCl₂, 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 proteins 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
- Temperature stable

Specific activity	400.000 Units/mg
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 MgCl₂, 500 mM NaCl.

Cat.No.	Size
18541.01	5.000 U
18541.02	25.000 U

Sample Application Pieces 10 x 5 mm

HS 48232000

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 PAGE (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

CAS [8047-15-2]



WARNING

H315-H319-H335 ♦ EINECS 232-462-6 ♦ WGK 2L ♦ HS 29389090

DAB 9. 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 62

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 (cat. no. 35500)	0.1 mg/ml

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 40

SDS Buffer Kit Neutral

HS 38220000

SDS buffer system for SDS-electrophoresis. Contains anode buffer, cathode buffer, cooling contact fluid, and electrode wicks.

Cat.No.	Size
43354.01	1 kit

SDS Gel Electrophoresis Markers

see 39208 Protein Test Mixture 4 for SDS PAGE, page 86, 208

SDS Gel Kit 10 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis:

10 % T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C 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

Ready-to-use kit for SDS electrophoresis: 10 %T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C 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

Ready-to-use kit for SDS electrophoresis: 15 %T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C 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

Ready-to-use kit for SDS electrophoresis: 15 %T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C 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. 12.5 % T, 25 slots for 15 µl, 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C 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. 15 % T, 25 slots for 15 µl, 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size
43364.01	1 kit

■ 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 gel electrophoresis: 25 slots for 15 µl, 4 gels + buffer kit suitable for urine protein analysis; for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size
43391.01	1 kit

■ SDS Solution, 20 %



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

SDS (cat. no. 20770): 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. 0.2 µm filtered

Composition:

SDS (cat. no. 39574): 200 g/L

Cat.No.	Size
39575.01	100 ml
39575.02	1 L

■ SDS Solution, 20 % electrophoresis grade



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

Ultrapure SDS solution, suitable for standard and high resolution electrophoresis techniques.

Composition:

SDS (cat. no. 20771): 200 g/L

Cat.No.	Size
20768.01	100 ml
20768.02	500 ml
20768.03	1 L

■ L-Seleno-Methionine

C₅H₁₁NO₂Se ♦ M_r 196.1 ♦ CAS [3211-76-5]

DANGER

H301-H331-H373-H400-H410 ♦ EG-

Index 034-002-00-8 ♦ GGVSE/ADR 6.1 II UN3283

♦ IATA 6.1 II UN3283 ♦ WGK 3 ♦ HS 29310099

Assay
Seleniummin. 99.0 %
39.0 - 41.0 %

Cat.No.	Size
77765.01	500 mg
77765.02	100 mg

■ Semi-dry Blotting Buffer Kit for Western Blotting



DANGER

H301-H311-H331-H370 ♦ GGVSE/ADR 6.1 II UN2810 ♦

IATA 6.1 II UN2810 ♦ 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® Ion Exchange Resins

see Special Section, page 378

■ L-Serine research grade

(Ser; L-2-Amino-3-hydroxypropionic acid)

C₃H₇NO₃ ♦ M_r 105.09 ♦ CAS [56-45-1]

EINECS 200-274-3 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)
Heavy metals (Pb)98.5 - 101.0 %
max. 10 ppm

Cat.No.	Size
34962.02	50 g
34962.03	250 g
34962.04	1 kg

■ L-Serine cell culture grade

(Ser; L-2-Amino-3-hydroxypropionic acid)

C₃H₇NO₃ ♦ M_r 105.09 ♦ CAS [56-45-1]

EINECS 200-274-3 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
47215.01	100 g
47215.02	500 g

For Dialysis Tubing
see special chapter at p. 156

SERVA 2D PAGE Detergent Sampler

(Detergent Sampler)
HS 38220000

Protein extraction is a crucial step of proteomic analysis. The optimal solubilization of proteins is an essential condition for receiving the best resolution in 2D gel electrophoresis.

The SERVA 2D PAGE Sampler contains six innovative zwitterionic detergents for optimizing protein solubilization. Zwitterionic detergents offer solubilization properties of membrane proteins superior to other detergent types and do not interfere with subsequent MS analysis.

The variety of detergents allows optimizing of the extraction formulas, which vary with cell type and protein of interest.

Each detergent is supplied as 1 g pack size:

CHAPS (cat. no. 17038)
SB 12 (cat. no. 20761)
SB 3-10 (cat. no. 20756)
ASB-14 (cat. no. 20757)
ASB-16 (cat. no. 20758)
ASB-C7BzO (cat. 20759)

Cat.No.	Size
20784.01	1 kit

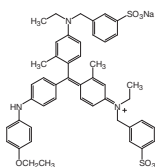
SERVA Blue G

(Acid Blue 90; COOMASSIE® Brilliant Blue G-250;
Xylene Brilliant Cyanine G)
C.I.42655 ♦ $C_{47}H_{48}N_3O_7S_2 \cdot Na$ ♦ M_r 854.0 ♦
CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

λ_{max} . (0.001 % pH 7) 580 - 590 nm
A 1 cm/ λ_{max} ./1 % pH 7 min. 450
Water max. 10.0 %
TLC corresponds

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size
35050.01	5 g
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

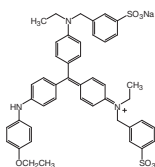
(Acid Blue 83; COOMASSIE® Brilliant Blue R-250)
C.I.42660 ♦ $C_{45}H_{44}N_3O_7S_2 \cdot Na$ ♦ M_r 826.0 ♦
CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

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
 $\epsilon_{\lambda_{max}}$. pH 7 min. 25 000
Water max. 10.0 %
TLC corresponds

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size
35051.01	5 g
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

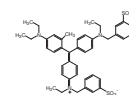
SERVA Blue W soluble in water

(Acid Blue 15)
C.I.42645 ♦ $C_{42}H_{46}N_3O_6S_2 \cdot Na$ ♦ M_r 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/ λ_{max} ./0.001 % pH 7 min. 0.5



Cat.No.	Size
35053.02	25 g
35053.03	100 g

SERVA BluePrep Kits

see Chapter Sample Preparation, page 124

SERVA BN PAGE Detergent Sampler

(Detergent Sampler)



DANGER
H301-H311-H318-H331 ♦ HS 38220000

Blue-Native PAGE (BN PAGE), originally described by Schagger and von Jagow, in combination with 2D PAGE or liquid chromatography of proteins is a powerful technique for functional proteomics. It allows the study of protein-protein interactions, and the separation and analysis of very hydrophobic proteins, such as membrane proteins, their complexes, and even super-complexes.

As a first step hydrophobic proteins and complexes have to be solubilized with a mild nonionic detergent, like Triton X®-100, digitonin or dodecyl-beta-D-maltoside. Digitonin is the mildest and therefore allows the separation of intact super-complexes.

The SERVA BN PAGE Sampler contains three non-ionic detergents for optimizing solubilization of protein complexes for Blue native PAGE:

500 mg Triton® X-100 (cat. no. 37240)
250 mg Dodecyl-beta-D-maltoside (cat. no. 20780)
250 mg Digitonin (cat. no. 19550)

References:

- Schagger, H. and Jagow, G., (1991), Anal Biochem. **199**, 223-231
- Krause, F., (2006), Electrophoresis **27**, 2759-2781

Cat.No.	Size
20785.01	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), as run in BlueVertical Mini Slab Gel System (BV 102).

Cat.No.	Size
42524.01	200 sheets

SERVA CSF Silver Staining Kit



DANGER
H225-H314-H331-H334-H411 ♦
HS 38220000

High sensitive silver staining kit for staining of up to 5 CSF gels.

Cat.No.	Size
43398.01	1 kit

SERVA DensStain Blue G Staining Solution, 2x concentrate For 20 mini gels

HS 38220000

Ready-to-use colloidal staining solution.

- For SDS PAGE gels and native PAGE gels
- For SDS PAGE gels: no fixation is required
- Extreme low background
- Allows analysis by densitometry
- Sufficient for 20 mini gels (10 x 10 cm) or 10 standard gels (14 x 16 cm up to 20 x 20 cm)
- Detects proteins down to 30 ng protein/band (BSA)
- Economical - use staining solution 3 times
- Staining procedure will take approx. 1 to 2 hours
- Stable for at least 12 months

Cat.No.	Size
35078.01	500 ml

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 acid 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 acid 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 Dryer Frame Kit

HS 90330000

For drying of mini vertical slab gels (to up to 10 x 10 cm). Containing 2 dryer frames (cat. no. 42521.01) and 200 cellophane sheets (cat. no. 42522.01).

Cat.No.	Size
42523.01	1 kit

SERVA Dual Color Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Dual Color Protein Standard III is a dual color prestained size marker. It is a mixture of 10 recombinant prestained polypeptides with molecular weights ranging from 7 kDa to 240 kDa.

SERVA Dual Color III is ready-to-use without the need of reconstitution or further dilution. A blue and orange chromophore is covalently bound to proteins, and the 10 prestained proteins are visible during electrophoresis or on a membrane after Western Blotting. The 25 kDa and 70 kDa proteins labelled with an orange chromophore are easily identified and serve as a landmark.

Because coupling of the proteins affects their apparent molecular weights in SDS-PAGE, unstained protein standard like the SERVA Unstained Protein Standard III (cat. no. 39249) should be used for accuracy >95 %. Recommended loading volume for a mini gel is 5 - 10 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size
39252.01	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 down stream 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 nearly no to zero 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 applying the oil a separate dropping bottle is included.

Cat.No.	Size
43397.01	1 L

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 down stream mass spectrometry analysis.

Cat.No.	Size
43395.01	1 kit

SERVA HPE™ Lightning Red

DANGER



H226-H312-H319-H332-H360D ♦ GGVSE/
ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦ 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 labeled protein solution is directly applied on 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 solubilisation and protein extraction, including carrier ampholytes and reductants.

Alkaline 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 > 10⁴
- No over-staining effects
- Fully MS and Western Blotting compatible

The kit contains 250 µg SERVA HPE™ Lightning Red dye and 25 µl DMF.

Cat.No.	Size
43400.01	1 kit

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 kit

■ SERVA ICPL™ 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 two labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-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 ^{12}C - and ^{13}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 = registered trademark of TopLab GmbH, Martinsried, Germany

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 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-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 ^{12}C -, ^2D - and ^{13}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.

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 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{D}_4$)-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 ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - 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.

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 endoproteases 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 ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer, standard protein mix A, B, C and X, ICPL™-Standard PLUS, Trypsin NB modified, and Endoproteinase Glu-C. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size
39233.01	1 kit

■ SERVA IPG BlueStrip 3-10 / 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
43001.01	12 strips

■ SERVA IPG BlueStrip 3-10 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43031.01	12 strips

■ SERVA IPG BlueStrip 3-10 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43041.01	12 strips

■ SERVA IPG BlueStrip 3-10 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43011.01	12 strips

■ SERVA IPG BlueStrip 3-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43021.01	12 strips

■ SERVA IPG BlueStrip 3-10 NL / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43002.01	12 strips

■ SERVA IPG BlueStrip 3-10 NL / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43032.01	12 strips

Products for Electrophoresis:
see special chapter at p. 189

■ SERVA IPG BlueStrip 3-10 NL / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43042.01	12 strips

■ SERVA IPG BlueStrip 3-10 NL / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43012.01	12 strips

■ SERVA IPG BlueStrip 3-10 NL / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43022.01	12 strips

■ SERVA IPG BlueStrip 3-6 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43005.01	12 strips

■ SERVA IPG BlueStrip 3-6 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43035.01	12 strips

■ SERVA IPG BlueStrip 3-6 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43045.01	12 strips

■ SERVA IPG BlueStrip 3-6 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43015.01	12 strips

■ SERVA IPG BlueStrip 3-6 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43025.01	12 strips

■ SERVA IPG BlueStrip 4-7 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43003.01	12 strips

■ SERVA IPG BlueStrip 4-7 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43033.01	12 strips

■ SERVA IPG BlueStrip 4-7 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43043.01	12 strips

■ SERVA IPG BlueStrip 4-7 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43013.01	12 strips

■ SERVA IPG BlueStrip 4-7 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43023.01	12 strips

■ SERVA IPG BlueStrip 5-8 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43006.01	12 strips

■ SERVA IPG BlueStrip 5-8 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43036.01	12 strips

■ SERVA IPG BlueStrip 5-8 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43046.01	12 strips

■ SERVA IPG BlueStrip 5-8 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43016.01	12 strips

■ SERVA IPG BlueStrip 5-8 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43026.01	12 strips

■ SERVA IPG BlueStrip 6-10 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43004.01	12 strips

■ SERVA IPG BlueStrip 6-10 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43034.01	12 strips

■ SERVA IPG BlueStrip 6-10 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43044.01	12 strips

■ SERVA IPG BlueStrip 6-10 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43014.01	12 strips

SERVA IPG BlueStrip 6-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size
43024.01	12 strips

SERVA Lightning Red for 1D SDS PAGE



DANGER

H226-H312-H332-H360D ♦ HS 38220000

Storage temperature +2 °C to +8 °C

SERVA Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 1D SDS 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: Just mix your sample with the provided SERVA SDS sample buffer pH 8.3, after heating add the sample to 10 µl dye solution and incubate for 30 min at room temperature.

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.

Samples of protein concentrations between 1 and 10 mg/ml can be used and no purification or concentration steps after labelling are necessary. Sufficient for 500 lanes or 1250 lanes – no matter what size of gel – mini, wide or large format – you use

- Direct detection
- No staining and washing steps after the run
- Very high sensitivity, < 0.5 ng BSA
- Wide dynamic and linear range
- No over-staining effect
- Fully MS and Western Blotting compatible

Cat.No.	Size
43401.01	500 reactions
43401.02	1.250 reactions

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 Pink Color Protein Standard II

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Pink Color Protein Standard II is a mixture of 11 pre-stained proteins of a molecular weight range from 10.5 to 175 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a pink chromophore and contain for easy identification three blue bands at approximate 10 kDa, 40 kDa and 90 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 Pink 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 5 µl/lane.

Cat.No.	Size
39259.01	500 µl

SERVA Prestained SDS PAGE Protein Marker 6.5 - 200 kDa, liquid mix

HS 38220000

Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Covalently stained standard proteins ranging from 6.5 kDa to 200 kDa (see below).

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. The proteins are covalently stained and are represented in quantities to guarantee an equal distribution in band intensity, the proteins are stored in 50 mM TrisHCl, 2 % SDS, 10 % sucrose, pH 6.8.

Myosin	M _r 200 000
β-Galactosidase	M _r 116 000
Albumin bovine (BSA)	M _r 67 000
Ovalbumin	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Lysozyme	M _r 14 300
Aprotinin	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
39216.01	2 x 250 µl

SERVA PRiME DNA Sample Buffer (3x)

HS 38220000

Storage temperature +2 °C to +8 °C

Although higher agarose concentrations can be used to separate small DNA fragments, separation on a polyacrylamide gel results in better resolution and separation. Due to a defined pore size, polyacrylamide gels have a resolving capability of 0.2 % difference in DNA length. Additionally, polyacrylamide gels can be loaded with up to 10 µg nucleic acid without any loss in resolution.

For optimal separation of small DNA fragments between 10 bp and 3000 bp, we developed the SERVA PRiME DNA sample buffer. It is a high density sample buffer optimized for non-denaturing DNA gel electrophoresis on SERVAGel TG PRiME vertical mini gels.

Cat.No.	Size
42544.01	10 ml

SERVA ProteinStain Fluo-R powder

C₇₂H₄₂N₆Na₄RuS₆ ♦ M_r 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 UV 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
35090.02	25 mg

■ SERVA ProteinStain Fluo-R solution

HS 38220000

Storage temperature +2 °C to +8 °C

Concentrate of SERVA ProteinStain Fluo-R (cat. no. 35090). Dilute 1:1000 to receive a 1 µM staining solution.

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 best excited with UV 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
35091.01	1 ml

■ SERVA ProteinStain Fluo-Y solution, 100 x

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA ProteinStain Fluo-Y is a fast and sensitive fluorescent protein stain for 1D or 2D SDS-PAGE. The 100x stock solution is simply diluted with water to its working concentration. After binding of the dye to proteins, it emits a strong fluorescence of bright golden colour. The maximum emission wave length of protein-bound dye is near 570 nm. Gels stained with SERVA ProteinStain Fluo-Y may be directly visualized with a variety of different UV-based fluorescence imaging systems.

Gels are fixed with ethanol/acetic acid solution and then directly stained with SERVA ProteinStain Fluo-Y. The whole staining procedure is completed in as little as 30 min. A destaining step is usually not necessary. But for reduction of background, simply wash gels in water for 1 – 5 min.

The bound dye is easily removed from the protein by washing the gel with sufficient water. Thus the staining is compatible with subsequent mass spectrometric analysis. Stained gels may be stored in stain solution in the dark at 2 – 8 °C.

- Highly sensitive fluorescent protein stain over a wide dynamic range
- Two-step protocol, no destain
- Directly detected by UV-imaging systems
- MS compatible

Cat.No.	Size
35092.01	10 ml

■ SERVA Purple



DANGER

H225-H302-H312-H319-H332 ♦ GGVSE/ADR 3 II UN1648 ♦ IATA 3 II UN1648 ♦ WKG 2L ♦ HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Purple is a fluorescence dye that reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product. This unique mechanism provides sensitive quantification of proteins in 1 and 2D gels of all chemistries, on both PVDF and nitrocellulose blots and provides unparalleled compatibility with mass spectrometry. Sensitivity to as low as 50 pg/band. Linear quantification over 4 orders of magnitude. Compatible with MS, DIGE-labelling. Environmentally friendly. Easy to use.

Cat.No.	Size
43386.01	25 ml
43386.02	4 x 25 ml

■ SERVA Recombinant SDS PAGE Protein Marker 10 - 150 KDa, liquid mix

HS 38220000

Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Recombinant proteins ranging from 10 kDa to 150 kDa (see below).

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. The proteins are represented in quantities to guarantee an equal distribution in band intensity, the protein content is approx. 0.1 - 0.2 mg/ml. The proteins are stored in 50 mM TrisHCl, 10 mM DTT, 2 % SDS, 0.1 % bromophenol blue, pH 6.8.

Protein 1	M _r 150 000
Protein 2	M _r 100 000
Protein 3	M _r 80 000
Protein 4	M _r 60 000
Protein 5	M _r 40 000
Protein 6	M _r 30 000
Protein 7	M _r 20 000
Protein 8	M _r 10 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size
39217.01	500 µl

■ 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 gel electrophoresis, 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 gel electrophoresis:

- 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 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

Find Centrifuges,
Thermoshakers and
Aspiration Systems at p. 260

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

Storage temperature +2 °C to +8 °C

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/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-MOPS/SDS Electrophoresis Buffer (20x)

(MOPS; Tris-MOPS/SDS running buffer)

HS 38220000

Running buffer for SDS-PAGE. Optimized formulation to improve separation performance for high molecular proteins, 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 8.4), 0.6 M MOPS and 2 % SDS.

Cat.No.	Size
42561.01	1 L

SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x)

(Tris-Tricine/SDS running buffer)

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 III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Unstained Protein Standard III is a mixture of 10 recombinant polypeptides with molecular weights ranging from 7 kDa to 240 kDa. SERVA Unstained Protein Standard III is ready-to-use without the need of reconstitution or further dilution. The 25 kDa and 70 kDa serve as a landmark, because they are present at a higher concentration in the mixture relative to the adjacent bands.

Recommended loading volume for a mini gel is 5 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size
39249.01	500 µl

SERVA Violet 17

(Acid Violet 17; COOMASSIE® Violet R-150)

C.I.42650 ♦ C₄₁H₄₄N₃O₆S₂·Na ♦ M_r 761.9 ♦

CAS [4129-84-4]



H411 ♦ GGVSE/ADR 9 III UN3077 ♦

IATA 9 III UN3077 ♦ EINECS 223-942-6 ♦

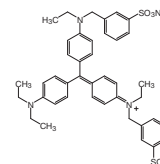
WGK 3L ♦ HS 32041200

For staining of proteins in PAGE.

λ_{max}. (0.001 % in water) 544 - 550 nmA 1 cm/λ_{max}/0.001 % in water min. 0.8

Water (KF) max. 10.0 %

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size
35072.01	5 g
35072.02	25 g
35072.03	100 g

SERVACEL® Cellulose Ion Exchangers

see Special Section, page 381

■ SERVA Violet 17 Staining Kit



DANGER
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 Western Blot Protein Standard

HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Western Blot Protein Standard marker is a mixture of 8 recombinant proteins of a molecular weight range from 16 000 to 215 000. It is provided in a ready-to-use formula and no reconstitution, further dilution or adding of extra reagents is necessary before use. The highly purified recombinant proteins are designed to bind immunoglobulins with high affinity in a denatured form, thus marker proteins bind to primary or secondary antibodies in your Western Blotting. SERVA Western Blot marker is suitable for chemiluminescence and chromogenic detection methods using horseradish peroxidase or alkaline phosphatase.

The marker proteins are adjusted to result in even signal intensities, thus the marker can not only be used for reproducible molecular weight estimation directly on western blots, but as well for optimizing western transfer conditions and control of the detection system.

Protein 1	M _r 215 000
Protein 2	M _r 150 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 16 000

Cat.No.	Size
39256.01	250 µl

■ SERVACHrom Protein Standard III

HS 38220000
Storage temperature -15 °C to -25 °C

SERVACHrom Protein Standard III is a mixture of 10 recombinant purified and prestained polypeptides. The molecular weights are well-adjusted ranging from 7 to 240 kDa:

7 kDa - blue, 15 kDa - red, 20 kDa - blue, 25 kDa - orange, 35 kDa - green, 50 kDa - yellow, 70 kDa - orange, 100 kDa - violet, 140 kDa - blue, 240 kDa - orange.

It is provided preblended in a ready-to-use formula and no reconstitution or further dilution is necessary before use. For SERVACHrom Protein Standard III, 6 different dyes offer a good contrast so 10 prestained proteins are visible during electrophoresis or electrophoretic transfer from the gel to membrane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size
39255.01	500 µl

■ 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
43260.03	2 gels

■ 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
43261.03	2 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
43263.03	2 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
43264.03	2 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
43266.03	2 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™ PRiME™ TG 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
43267.03	2 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
43268.03	2 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
43269.03	2 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
43270.03	2 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
43271.03	2 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
43273.03	2 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
43274.03	2 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
43276.03	2 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
43277.03	2 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
43279.03	2 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
43280.03	2 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
43281.03	2 gels

■ SERVAGel™ TG PRiME™ Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ TG PRiME™ 12 % precast gels with 12 sample wells (cat. no. 43266), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size
43206.01	1 kit

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43220) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size
43221.01	10 gels
43221.03	2 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
43222.03	2 gels

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43220) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size
43221.01	10 gels
43221.03	2 gels

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43222) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size
43223.01	10 gels
43223.03	2 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
43245.03	2 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
43246.03	2 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
43247.03	2 gels

■ **SERVAGel™ Neutral HSE Starter Kit** 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ Neutral HSE precast gels with 12 sample wells (cat. no. 43245), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size
43207.01	1 kit

■ **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
43250.03	2 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
43251.03	2 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
43253.03	2 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
43252.03	2 gels

■ SERVAGel™ N Native Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains:

- 2 precast gels SERVAGel™ N 3-12, Vertical Native Gels 3-12 % (10 sample wells, cat. no. 43251)
- 2 precast gels SERVAGel™ N 4-16, Vertical Native Gels 4-16 % (10 sample wells, cat. no. 43253)
- 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 Solution for BN, 1 % (cat. no. 42538)

Cat.No.	Size
43204.01	1 kit

■ 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
43240.03	2 gels

■ 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
43242.03	2 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 3-10 (10x, powder for 200 ml buffer)

Cat.No.	Size
42539.01	1 kit

■ SERVALight Polaris CL HRP WB Substrate Kit

(Chemiluminescence Substrate Kits)

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.

- High sensitivity, low pictogram 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

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size
42584.01	100 ml
42584.02	250 ml
42584.03	500 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.

- Very high sensitivity, high 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

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size
42585.01	50 ml
42585.02	250 ml
42585.03	500 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.

SERVALight EosUltra substrate is optimized for maximum length of light emission and therefore ideal for detection by CCD imaging systems.

- Ultrahigh sensitivity, 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

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size
42586.01	20 ml
42586.02	100 ml
42586.03	200 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.

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

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size
42587.01	20 ml
42587.02	100 ml
42587.03	200 ml

■ SERVALYT™ 2-4

(Carrier Ampholytes; Ampholytes)

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 registered 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.

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.

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.

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.

Cat.No.	Size
42903.01	10 ml
42903.02	25 ml
42903.04	2 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.

Cat.No.	Size
42944.01	10 ml
42944.02	25 ml
42944.04	2 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.

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.

Cat.No.	Size
42940.01	10 ml
42940.02	25 ml
42940.04	2 ml

■ SERVALYT™ 3-10 Iso-Dalt, for 2D-GE

HS 38220000

Storage temperature +2 °C to +8 °C

Iso-Dalt quality; special 2D-grade to be used in 2D-electrophoresis.

Cat.No.	Size
42951.01	10 ml
42951.02	25 ml
42951.04	2 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.

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.

Cat.No.	Size
42904.01	10 ml
42904.02	25 ml
42904.04	2 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.

Cat.No.	Size
42948.01	10 ml
42948.02	25 ml
42948.04	2 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.

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.

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.

Cat.No.	Size
42905.01	10 ml
42905.02	25 ml
42905.04	2 ml

■ **SERVALYT™ 5-7 PGM**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special type for phosphoglucutase subtyping by IEF.

Cat.No.	Size
42936.01	10 ml
42936.02	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.

Cat.No.	Size
42949.01	10 ml
42949.02	25 ml
42949.04	2 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.

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.

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.

Cat.No.	Size
42906.01	10 ml
42906.02	25 ml
42906.04	2 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.

Cat.No.	Size
42913.01	10 ml
42913.02	25 ml
42913.04	2 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.

Cat.No.	Size
42907.01	10 ml
42907.02	25 ml
42907.04	2 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.

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.

SERVALYT™ PRECOTES™ is a registered 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.

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.

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.

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.

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.

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.

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.

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.

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.

Cat.No.	Size
42878.02	5 gels

■ SERVALYT™ PreNets™ pH 3-10

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 registered trademark of SERVA.

Cat.No.	Size
42738.02	5 gels

■ SERVALYT™ PreNets™ pH 4-6

HS 38220000

Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.

Description see cat. no. 42738 (above).

Cat.No.	Size
42748.02	5 gels

■ SERVASnow Staining Kit Zinc staining solution for protein gels



DANGER

H302-H314-H361-H400-H410 ♦ HS 38220000

The SERVASnow Staining Kit is ideal for in-gel protein detection preceding many downstream applications, because it is a completely reversible staining. The simple rapid staining method results in a stained gel with an opaque milky-white background and clear protein bands. The proteins are fixed in the gel after staining, which enables the user to interrupt his assays between electrophoresis and transfer. The white background is easily removed with a Tris-EDTA buffer. The proteins are free of any dyes and can then be restained by other methods, transferred to membrane for Western Blotting or eluted from an excised gel piece.

- Fast – time required is 25 min.
- Sensitive – detection limit <10 ng protein
- Gentle – no chemical modification of the proteins
- Reversible – stain can be completely erased from the gel

Cat.No.	Size
35080.01	1 kit

■ Sialic acid

see 10465 N-Acetylneuraminic acid, page 3

■ Silica Gel Desiccant, orange

HS 28399000

Heavy-metal free moisture indicating beads. Contain organic dye indicator which changes colour from orange to green when beads have adsorbed about 6 % water. Adsorption of water continues however until maximum capacity is reached. Capacity ca. 42 % at 25 °C and 80 % relative humidity. Regeneration occurs between 130 - 160 °C with change in colour again to orange.

Particle size: 2 - 5 mm.

Cat.No.	Size
27160.01	500 g

■ Silicone anti-foam emulsion, 30 %

(30 % Dimethicone)
HS 39100000

USP. 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 = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.934 - 0.940

Cat.No.	Size
35132.01	500 g

■ Silicone DC 200 fluid; 20 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.946 - 0.952

Cat.No.	Size
35133.01	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 = $10^{-6} \text{m}^2 \text{s}^{-1}$
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 = $10^{-6} \text{m}^2 \text{s}^{-1}$
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 = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.966 - 0.972

Cat.No.	Size
35136.01	500 g

■ Silicone DC 550 fluid; 115 cst pract.

WGK 1L ♦ HS 39100000

(Polyphenylmethyl dimethylsiloxane)
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
(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_r 2600

WGK 1L ♦ HS 39100000

(Phenylmethyl dimethylsiloxane)

In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$

(50 % Methyl-50 % phenylsilicone). For GC, tmax. 225 °. Extremely stable at high temperatures.

Density (25 °C) 1.10 - 1.11

Cat.No.	Size
35149.01	100 g
35149.04	1 kg

■ Silicone solution SERVA for siliconizing glass and metal in isopropanol



DANGER

H225-H319-H336 ♦ GGVSE/ADR 3 II UN1219 ♦

IATA 3 II UN1219 ♦ WGK 1 ♦ HS 39100000

Suitable for siliconizing 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

AgNO₃ ♦ M_r 169.89 ♦ CAS [7761-88-8]



DANGER

H272-H314-H318-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 spun 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
39226.02	600 tests

Products for Sample Preparation:

see special chapter at p. 123

■ **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 - 35.0 %
Fat max.	1.25 %
Lactose	51.0 - 56.0 %
pH (10 % in water)	6.5 - 6.7
Ash	7.2 - 8.2
Water max.	4.0 %

References:

1. Johnson, D. A. et al. (1987) Gene Anal. Techn. **1**, 3 – 8
2. Harlow, E. & 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 70, 347

■ **Sodium-L-(+)-ascorbate**

see 14033 L-Ascorbic acid-Na-salt, page 15, 319, 343

■ **Sodium-β-glycerophosphate**see 23330 2-Glycerolphosphate-Na₂-salt, page 53, 139■ **Sodium acetate** analytical grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 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** molecular biology grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1 ♦ HS 29152900

DNase/RNase not detected. pKa 25 = 4.76.

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

Cat.No.	Size
39571.01	500 g

■ **Sodium acetate buffer pH 5.2, solution 3M**

molecular biology grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 82.0 ♦ CAS [127-09-3]

HS 38220000

DNase/RNase not detected.

Composition:C₂H₃O₂-Na (cat. no. 39571) 246.0 g/l

Cat.No.	Size
39572.01	250 ml
39572.02	1 L

■ **Sodium azide** research gradeNaN₃ ♦ M_r 65.01 ♦ CAS [26628-22-8]

DANGER

H300-H400-H410 ♦ MAK/TRK 0,2 mg/m³ ♦ 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

Assay (titr.) min. 99.0 %

Cat.No.	Size
30175.01	100 g
30175.02	1 kg
30175.03	250 g

■ **Sodium bicarbonate** molecular biology gradeNaHCO₃ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1L ♦ HS 28363000

DNase/RNase not detected.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size
39780.01	250 g
39780.02	1 kg

■ **Sodium bicarbonate** research grade

(Sodium hydrogen carbonate)

NaHCO₃ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1 ♦ HS 28363000

USP, Ph.Eur. 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-3H₂O, page 21, 365■ **Sodium carbonate** analytical gradeNa₂CO₃ ♦ M_r 106.0 ♦ CAS [497-19-8]

WARNING

H319 ♦ EG-Index 011-005-00-2 ♦ EINECS 207-838-8 ♦ WGK 1L ♦

HS 28362000

Assay (titr.)	99.5 - 100.5 %
Heavy metals (Pb)	max. 50 ppm

Cat.No.	Size
30181.02	1 kg

■ **Sodium chloride** cryst. research gradeNaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	≤ 5 ppm

Cat.No.	Size
30183.01	1 kg

■ **Sodium chloride** molecular biology gradeNaCl ♦ M_r 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 chloride solution, 5 M molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected.

Composition:

NaCl (cat. no. 39781) 292.2 g/l

Cat.No.	Size
39782.01	1 L

■ Sodium cholate

see 17126 Cholic acid-Na-salt, page 26, 143

■ Sodium deoxycholate

see 18330 Deoxycholic acid-Na-salt, page 34, 143

■ Sodium dihydrogen phosphate-2H₂O molecular biology grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

HS 28352200

DNase/RNase not detected.

Assay	98.0 - 100.5 %
Sulfate (SO ₄)	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %

Cat.No.	Size
39784.01	250 g
39784.02	1 kg

■ Sodium dihydrogen phosphate-2H₂O research grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size
30186.02	1 kg

■ Sodium dodecyl sulfate

see 20760 Dodecylsulfate-Na-salt, page 40

■ Sodium dodecyl sulfate

see 20765 Dodecylsulfate-Na-salt in Pellets, page 40, 246

■ Sodium glucuronate

see 22890 D-Glucuronic acid-Na-salt, page 51

■ Sodium hydrogen carbonate

see 30180 Sodium bicarbonate, page 106, 324, 356

■ di-Sodium hydrogen phosphate-2H₂O analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 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.)	98.0 - 100.5 %
pH 5 % solution	9.0 - 9.2
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size
30200.01	500 g

■ di-Sodium hydrogen phosphate-2H₂O molecular biology grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

HS 28352200

DNase/RNase not detected. Buffering substance.

Assay	min. 99.5 %
pH 5 % solution	9.0 - 9.2
Heavy metals (Pb)	max. 0.001 %

Cat.No.	Size
39783.01	250 g
39783.02	1 kg

■ Sodium laurylsulfate

see 20760 Dodecylsulfate-Na-salt, page 40

■ Sodium laurylsulfate

see 20765 Dodecylsulfate-Na-salt in Pellets, page 40, 246

■ Sodium molybdate-2H₂O analytical grade

Na₂MoO₄·2H₂O ♦ M_r 241.95 ♦ CAS [10102-40-6]

EINECS 231-551-7 ♦ WGK 1 ♦ HS 28417000

Ph. Eur. For electron microscopy. Inhibitor of Acid Phosphatase and Phosphoprotein Phosphatase.

Assay	min. 99.0 %
Heavy metals (Pb)	max. 100 ppm

Cat.No.	Size
30207.01	50 g

■ Sodium phosphate monobasic (prim. sodium phosphate)

see 39784 Sodium dihydrogen phosphate-2H₂O, page 107, 301

■ Sodium pyruvate

see 15220 Pyruvic acid-Na-salt, page 87, 323

■ Sodium succinate

see 14972 Succinic acid-Na₂-salt, page 109

■ Sodium taurocholate

see 35779 Taurocholic acid-Na-salt, page 110, 145, 325

■ Sodium Thiosulfate Pentahydrate for Silver Staining analytical grade

Na₂S₂O₃·5H₂O ♦ M_r 248.2 ♦ CAS [10102-17-7]

EINECS 231-867-5 ♦ WGK 1L ♦ HS 28323000

Assay (titr.)	min. 99.5 %
Heavy metals (Pb)	< 5 ppm
Cu	< 5 ppm
Fe	< 5 ppm

Cat.No.	Size
30218.01	10 g

■ α-Sophorose research grade

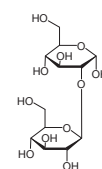
(2-O-β-D-Glucopyranosyl-α-D-glucose)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.3 ♦ CAS [20429-79-2]

WGK 1 ♦ HS 29400000

Assay (HPLC) min. 98.0 %

Cat.No.	Size
35208.01	50 mg



■ D-Sorbitol molecular biology grade

(D-Glucitol)

C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [50-70-4]

EINECS 200-061-5 ♦ HS 29054499

DNase/RNase not detected.

Assay (HPLC)	97.0 - 102.0 %
MP	98 - 102 °C

Cat.No.	Size
39785.01	500 g

■ D-Sorbitol research grade

(D-Glucitol)

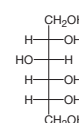
C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [50-70-4]

HS 29054499

Ph. Eur. For bacteriology and pharmacology. Tested for use in tissue culture.

Assay (HPLC)	97.0 - 102.0 %
MP	98 - 102 °C
Lead	max. 0.5 ppm

Cat.No.	Size
35230.02	1 kg



■ **Sorbitol gelatin after Clemens** phenol-free

HS 38220000

Glycerol-free aqueous slide mounting medium for microscopy, especially suitable for nuclear staining with Hematoxylin as well as lipid and metachromatic staining. It does not contain phenol, making it a safe, non-hazardous alternative.

Refractive index 1.44 - 1.47

Cat.No.	Size
23313.01	15 ml

■ **Sorbitolin**

HS 38220000

Glycerol substitute. Non-crystallizing sorbitol solution (74 %).

Refractive index 1.464

Density (20 °C) 1.28

Cat.No.	Size
23323.01	100 ml

■ **Sortex-Kit 10 %**

HS 38220000

Storage temperature -15 °C to -25 °C

Cereal-cultivar-differentiation electrophoresis kit. 4 gels 10 % T + special buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size
43358.01	1 kit

■ **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)

C₁₄H₂₄N₂O₇·2HCl·5H₂O ♦ M_r 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
35294.02	25 g

■ **Spectra/Por® Dialysis Membranes**

see Chapter Dialysis, page 159

■ **Spectra/Por® Float-A-Lyzer® Membranes**

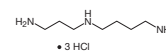
see Chapter Dialysis, page 176

■ **Spectra/Por® Biotech Dialysis Membranes**

see Chapter Dialysis, page 170

■ **Spermidine-3HCl** research grade

(N-(3-Aminopropyl)-1,4-diaminobutane-3HCl)

C₇H₁₉N₃·3HCl ♦ M_r 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.

Assay (titr.) min. 99.0 %

Cat.No.	Size
35285.02	5 g

■ **Spurr Embedding Medium**

see 21041 Embedding Medium ERL-4221D, page 42, 360

■ **20xSSC 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)

Na₃-citrate x 2 H₂O 88.23 g/L (0.3 M)

(cat. no. 38642)

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

■ **Staining kit Gallein**

HS 38220000

An alternative to nuclear staining with Hematoxylin. Nuclei will be coloured red. The kit contains 25 ml staining solution, 50 ml rinsing solution and 10 ml mounting medium.

Cat.No.	Size
23321.01	1 kit

■ **Staining kit Myrthilin**

HS 38220000

An alternative to nuclear staining with Hematoxylin. Myrthilin is used as dye and the nuclei will be coloured purple. The kit contains 25 ml staining solution, 50 ml fixing solution, 50 ml rinsing solution and 10 ml mounting medium.

Cat.No.	Size
23322.01	1 kit

■ **Stains-all**

see 19284 4,5,4',5'-Dibenzo-3,3'-diethyl-9-methylthiacarbocyanine ·bromide, page 36, 241

■ **Starch (Smithies)**

(Starch hydrolyzed; Toronto-starch)

CAS [9005-25-8]

EINECS 232-679-6 ♦ WGK 1L ♦ HS 35051090

For starch gel electrophoresis.

Cat.No.	Size
35370.01	100 g
35370.02	500 g
35370.03	2 kg

■ Staurosporine research grade

$C_{28}H_{26}N_4O_3$ ♦ M_r 466.5 ♦ CAS [62996-74-1]



DANGER

H301-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦

IATA 6.1 II UN2811 ♦ WGK 2 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Potent inhibitor of phospholipid/ Ca^{2+} dependent and cyclic nucleotide dependent protein kinases (1, 2, 3).

Inhibits also platelet aggregation (4).

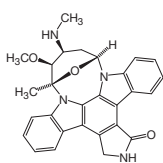
Protect from light!

Assay (HPLC)

min. 95.0 %

References:

1. Tamaoki, T. et al. (1986) Biochem. Biophys. Res. Commun. **135**, 397
2. Oka, S. et al. (1986) Agric. Biol. Chem. **50**, 2723
3. Lazzarini, J. et al. (1987) Int. J. Cancer **40**, 846
4. Hidaka, H. et al. (1984) Biochemistry **23**, 5036



Cat.No.	Size
35385.02	500 µg

■ Stem bromelain

see 15250 Bromelain from pineapple stem ca. 0.5 DMC-U/mg, page 20, 328

■ Streptavidin lyophil. salt-free

M_r 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.

Activity (biotin binding) min. 14.6 U/mg protein.

Unit definition: one unit of streptavidin will bind 1 µg of biotin.

Protein content: 90 - 100 %

Isoelectric point: 6.5 - 7.5

Cat.No.	Size
35490.01	1 mg
35490.02	5 mg
35490.03	10 mg

■ Streptomyces griseus neutral proteinase

see 33635 Pronase E from *Streptomyces griseus* min. 6.0 DMC-U/mg, page 84, 291, 338

■ Streptomycin sulfate research grade

$C_{21}H_{39}N_7O_{12} \cdot 1 \frac{1}{2} H_2SO_4$ ♦ M_r 728.7 ♦ CAS [3810-74-0]



WARNING

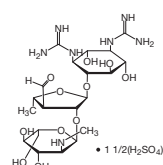
H302-H332 ♦ EINECS 223-286-0 ♦ WGK 2 ♦

HS 29412080

Ph. Eur. 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:

1. Zierhut, G. et al. (1979) Eur. J. Biochem. **98**, 577-83
2. Wallace, B.J. et al. (1979) in Antibiotics Vol. V, part C; Mechanism of Action of Antibacterial Agents, Springer, Berlin
3. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7



Cat.No.	Size
35500.01	10 g
35500.02	100 g
35500.03	1 kg

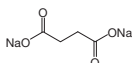
■ Succinic acid- Na_2 -salt research grade

(Bernsteinsäure- Na -salz; Sodium succinate)

$C_4H_4O_4 \cdot Na_2 \cdot 6H_2O$ ♦ M_r 270.1 ♦ CAS [6106-21-4]

EINECS 205-778-7 ♦ WGK 1L ♦ HS 29171990

Assay (titr., based on dried substance) min. 99.0 %



Cat.No.	Size
14972.02	500 g

■ Sucrose analytical grade

(Saccharose; Cane sugar)

$C_{12}H_{22}O_{11}$ ♦ M_r 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 %

$[\alpha]_D^{20}$ (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

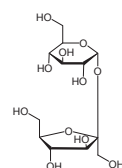
Lead (Pb)

max. 0.1 ppm

References:

1. Fraenkel-Conrat, H. & Singer, B. (1962) Biochemistry **1**, 120-8 (p. 127)

Cat.No.	Size
35579.02	500 g
35579.03	5 kg
35579.04	25 kg



■ Sucrose research grade

(Saccharose; Cane sugar)

$C_{12}H_{22}O_{11}$ ♦ M_r 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

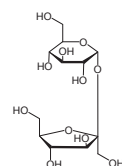
280 nm

max. 0.25

Heavy metals (Pb)

max. 1 ppm

Cat.No.	Size
35580.02	1 kg
35580.03	5 kg
35580.04	25 kg



■ Sulfobetaine SB 12

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

■ Sulfobetaine SB 3-10 research grade

(Caprylyl sulfobetaine; N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate; 3-(Decyldimethylammonio)propanesulfonate inner salt) HS 34021900

Zwitterionic detergent for solubilization of membrane proteins in their native state.

Micellar average weight

12 600

Aggregation number

41

CMC

25 - 40 mM (20 - 25 °C)

Assay (HPLC)

min. 98.0 %

References:

1. Hochstein, L.I., et al., (1987) Biochem. Biophys. Res. Commun. **147**, 295-300
2. Schulz, W., et al., (1989) J. Steroid Biochem. **32**, 581-590

Cat.No.	Size
20756.01	5 g
20756.02	25 g

■ 5-Sulfosalicylic acid analytical grade

(2-Hydroxy-5-sulfobenzoic acid)

$C_7H_6O_6S \cdot 2H_2O$ ♦ M_r 254.23 ♦ CAS [5965-83-3]



DANGER

H302-H314 ♦ GGVSE/ADR 8 III UN2585

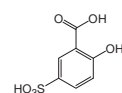
♦ IATA 8 III UN2585 ♦ EINECS 202-555-6 ♦ WGK 2 ♦

HS 29182900

Assay

min. 99.0 %

Cat.No.	Size
35706.01	100 g



■ Superoxide dismutase from bovine erythrocytes min. 3000 units/mg lyophil.

(CuZnSOD; Erythrocuprein; Superoxide: superoxide oxidoreductase)
EC 1.15.1.1 ♦ M_r ca. 32 000 ♦ CAS [9054-89-1]



DANGER
H334 ♦ EINECS 232-943-0 ♦ WGK 1 ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Scavenger of highly toxic radicals in the culture of anaerobes (1).

Unit definition: 1 unit catalyzes a 50 % inhibition in the rate of reduction of cytochrome C at 25 °C, pH 7.8 (2).

Extraneous activities: carbonic anhydrase max. 0.01 %

References:

1. Bannister, J.V. et al. (1987) CRC Critical Reviews in Biochemistry **22**, (2), 111-80
2. McCord, J.M. & Fridovich, I. (1969) J. Biol. Chem. **244**, 6049-55

Cat.No.	Size
35700.03	100.000 U

■ Synperonic® F108 pract.

M_r ca. 14000 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polypropylene glycol (M_r ca. 3 250): poly(ethylene glycol) ca. 1:4. MP 55 - 60 °C. Strongly hydrophilic (HLB ca. 27). More than 10 % soluble in water.

Registered trademark of ICI

Cat.No.	Size
35726.01	100 g
35726.02	1 kg

■ Synperonic® F68 pract.

M_r ca. 8300 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polyol detergent, block-copolymer. Pluronic™ PE 6800. Poloxamer 188. Poly(propylene glycol) (M_r ca. 1 750): poly(ethylene 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. & Gooch, C.F. (1990) Biotechnol. Prog. **6**, 142-8

Cat.No.	Size
35724.01	100 g
35724.02	1 kg

■ TAE buffer (10x)



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-Na₂-salt (cat. no. 11280) 3.72 g/l (0.01 M)
Acetic acid 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

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 ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 242.3 g/l
EDTA-Na₂ 2H₂O (cat. no. 11280) 18.6 g/l
Acetic acid 60.05 g/l

Cat.No.	Size
42549.01	1 L

■ TAPS

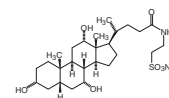
see 37194 N-Tris(hydroxymethyl)methyl-3-aminopropane sulfonic acid, page 115, 357

■ Taurocholic acid-Na-salt pure

(Sodium taurocholate)
C₂₆H₄₄NO₇S-Na . aq ♦ M_r 537.7 (anhydrous) ♦
CAS [145-42-6]

EINECS 205-653-7 ♦ WGK 1 ♦ HS 29181930
Storage temperature +2 °C to +8 °C

Purity (TLC) min. 98.0 %
Cholic acid-Na salt max. 1.0 %



Cat.No.	Size
35779.02	5 g

■ Taxol®

see 31360 Paclitaxel, page 75, 287

■ 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-Na₂-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

■ TCEP

see 36970 Tris-(2-carboxyethyl)phosphine hydrochloride, page 114, 150, 252

■ TE Buffer (100x)

HS 38220000

100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/L (1 M)
EDTA-Na₂-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-Na₂-salt (cat. no. 11280) 37.22 g/L (0.1 M)
pH 8.0 ± 0.2

Cat.No.	Size
39799.01	100 ml
39799.02	500 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. A modification of Lauber's procedure can be supplied on request.

References:1. Lauber, K. (1965) Z. Klin. Chem. **3**, 96-9

Cat.No.	Size
35796.01	1 L
35796.02	5 L

■ **TEMED**

see 35925 N,N,N',N'-Tetramethyl-ethylenediamine, page 111, 251

■ **TEMED**

see 35930 N,N,N',N'-Tetramethyl-ethylenediamine, page 111, 235, 251

■ **Testosterone research grade**

(4-Androsten-17β-ol-3-one; 17β-Hydroxy-4-androsten-3-one)

C₁₉H₂₈O₂ ♦ M_r 288.4 ♦ CAS [58-22-0]

DANGER

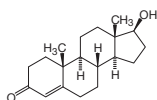
H302-H351-H360DF-H362 ♦

EINECS 200-370-5 ♦ HS 29372900

Ph. Eur.

Assay (UV)

97.0 - 103.0 %



Cat.No.	Size
35800.02	5 g

■ **Testosterone propionate research grade**C₂₂H₃₂O₃ ♦ M_r 344.5 ♦ CAS [57-85-2]

DANGER

H302-H351-H360 ♦

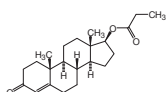
EINECS 200-351-1 ♦ WGK 2 ♦

HS 29372900

Storage temperature +2 °C to +8 °C

Assay (UV)

97.0 - 103.0 %



Cat.No.	Size
35805.02	5 g

■ **Tetra-n-butylammonium-hydrogensulfate analytical grade**C₁₆H₃₂N⁺HSO₄⁻ ♦ M_r 339.5 ♦ CAS [32503-27-8]

WARNING

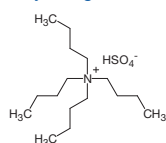
H315-H319 ♦ EINECS 251-068-5 ♦ WGK 2 ♦

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**

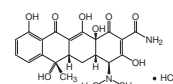
(Achromycin-HCl)

C₂₂H₂₄N₂O₈·HCl ♦ M_r 480.9 ♦ CAS [64-75-5]

WARNING

H315-H319-H335-H361d-H362-H37

3 ♦ EINECS 200-593-8 ♦ WGK 1 ♦ HS 29413000



USP.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

Heavy metals

max. 50 ppm

References:

1. Anderson, C.R. et al. (2005) J. Chromatogr. A **1075**, 23-32
2. Koesukiwat, U. et al. (2007) J. Chromatogr. A **1140**, 147-56
3. Guillaume, G. et al. (2000) FEMS Microbiol. Ecology **32**, 77-85
4. Call, D.R. et al. (2003) Antimicrob. Agents Chemother. **47**, 3290-5
5. Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8
6. 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)

C₆H₁₆N₂ ♦ M_r 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.

Assay (GC)

99.0 %

Cat.No.	Size
35930.01	10 ml
35930.02	25 ml

■ **N,N,N',N'-Tetramethyl-ethylenediamine**

(TEMED; TD)

C₆H₁₆N₂ ♦ M_r 116.21 ♦ CAS [110-18-9]

DANGER

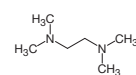
H225-H302-H314-H332 ♦ EG-Index 612-103-00-3

♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Assay (GC)

min. 98.5 %



Cat.No.	Size
35925.01	100 ml
35925.02	500 ml

■ **3,3',5,5'-Tetramethylbenzidine research grade**

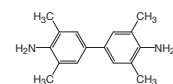
(TMB)

C₁₆H₂₀N₂ ♦ M_r 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 TMB ready-to-use substrate for blotting (cat.no. 37070).

Assay (titr.)

98.0 - 102.0 %

Cat.No.	Size
35926.02	5 g
35926.03	25 g

Detergents:

see special chapter at p. 141

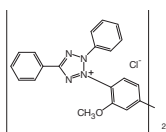
Tetrazolium Blue-chloride research grade

(BT; Blue tetrazolium chloride; 2,2',5,5'-Tetraphenyl-3,3'-(3,3'-dimethoxy-4,4'-biphenylene)-2H,2H'-ditetrazolium chloride)

$C_{40}H_{32}N_8O_2 \cdot Cl_2$ ♦ M_r 727.7 ♦ CAS [1871-22-3]

EINECS 217-488-8 ♦ WGK 2L ♦ HS 32041900

Assay (titr.) min. 94.0 %



Cat.No.	Size
35950.02	5 g

Tetrazolium Red

see 37130 Triphenyltetrazolium chloride, page 114, 349

THAM

see 37190 Tris(hydroxymethyl)aminomethane, page 115, 151, 357

Thapsigargin research grade

$C_{34}H_{50}O_{12}$ ♦ M_r 650.8 ♦ CAS [67526-95-8]



WARNING

H302-H332-H341 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Tumor-promoting sesquiterpene lactone. Induces the release of intracellular calcium stores by inhibition of the ER/microsomal Ca^{2+} ATPase.

Assay (HPLC) min. 95.0 %
Assay (TLC) homogeneous

References:

1. Wong, W.E. et al. (1993) Biochem. **289**, 71-9
2. Low, A.M. et al. (1993) Eur. J. Pharmacol. **230**, 53-62
3. Charlesworth, A. & Rozengurt, E. (1994) J. Biol. Chem. **269**, 32528-35
4. Foskett, J.K. & Wong, D.C. (1994) J. Biol. Chem. **269**, 31525-32
5. Furuya, Y. et al. (1994) Cancer Res. **54**, 6167-75
6. Palmer, F.P. et al. (1994) Biochim. Biophys. Acta **1215**, 190-7

Cat.No.	Size
36000.01	1 mg

Thiamine-HCl research grade

(Aneurin; Thiaminium chloride-hydrochloride; Vitamin B₁ hydrochloride)

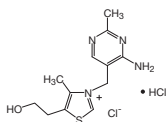
$C_{12}H_{17}ClN_4OS \cdot HCl$ ♦ M_r 337.3 ♦ CAS [67-03-8]

EINECS 200-641-8 ♦ WGK 1L ♦ HS 29362200

Storage temperature +2 °C to +8 °C

Ph. Eur.

Assay, dried (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 20 ppm



Cat.No.	Size
36020.02	100 g

Thiazolyl blue

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide, page 37, 320, 345, 370

Thimerosal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 44, 148, 297, 352

2-Thiobarbituric acid analytical grade

(4,6-Dihydroxy-2-thiopyrimidine)

$C_4H_4N_2O_2S$ ♦ M_r 144.2 ♦ CAS [504-17-6]

EINECS 207-985-8 ♦ HS 29335400

Assay min. 99.0 %



Cat.No.	Size
36108.01	10 g
36108.02	100 g

Thioglycerol

see 28637 3-Mercapto-1,2-propanediol, page 66, 248

Thiomersal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 44, 148, 297, 352

L-Threonine cell culture grade

Thr; L-2-Amino-3-hydroxybutyric acid)

$C_4H_9NO_3$ ♦ M_r 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ HS 29224985

Assay (titr.) min. 99.0 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH_4) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 20 ppm

Cat.No.	Size
47216.01	25 g
47216.02	100 g
47216.03	500 g

L-Threonine research grade

(Thr; L-2-Amino-3-hydroxybutyric acid)

$C_4H_9NO_3$ ♦ M_r 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
36382.02	25 g
36382.03	100 g

**Thrombin from bovine plasma min. 1000 units/mg**
protein lyophil.

(Coagulation Factor IIa)

EC 3.4.21.5 ♦ M_r 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 sec. 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

Thymidine

see 18600 2'-Deoxythymidine, page 34

TLCK

see 17013 L-1-Chloro-3-tosylamido-7-amino-2-heptanone-HCl, page 25, 138, 351

TMB

see 35926 3,3',5,5'-Tetramethylbenzidine, page 111, 223, 348

TMB ready-to-use substrate for blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component TMB substrate for detection of horseradish peroxidase in western, northern, southern and dot blots. The reaction product is a blue precipitate. Contains a proprietary enhancer and non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size
37070.01	100 ml

■ 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

■ Tobramycin sulfate research grade

(C₁₈H₃₇N₅O₉)₂ × 5H₂SO₄ ♦ M_r 1425.45 ♦ CAS [49842-07-1]



WARNING

H361d ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

USP. Potency: 634 - 739 µg Tobramycin/mg substance. Amino glycoside antibiotic; similar in structure and action to gentamycin sulfate and kanamycin sulfate.

Heavy metals (Pb)

max. 30 ppm

References:

- Giuliano, R.A. et al. (1986) Pharmacol. Experimental Therapeutics **236**, 470-5
- Petitou, M. (1994) Synthetic Oligosaccharides, ed. P. Kovac, vol. **560**, chapter 2, p. 19-35. ACS Symposium Series
- Higuchi, M. et al. (1999) Acta Haematol. **102**, 22-30
- Randell, S.H. et al. (2011) Methods in Molecular Biology vol. **742** (Cystic Fibrosis), 285-310
- Fulcher, M.L. a. Randell, S.H. (2013) Methods in Molecular Biology vol. **945** (Epithelial Cell Culture) 109-21

Cat.No.	Size
36562.01	250 mg

■ α-Toluenesulfonyl fluoride

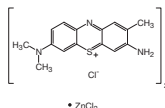
see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

■ Toluidine Blue O salt

(Basic Blue 17; 2-Amino-7-dimethylamino-3-methylphenothiazinium chloride)

C₁₅H₁₆ClN₃S ♦ M_r 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
λ max. 0.001 % in water 622 - 638 nm

References:

- Wilson, C.W. (1969) Anal. Biochem. **31**, 506-11
- Elson, E. & Jovin, T.M. (1969) Anal. Biochem. **27**, 193-204
- Rennert, O.M. (1967) Nature **213**, 1133
- 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 72, 372

■ Toronto-starch

see 35370 Starch (Smithies), page 108, 250

■ Nα-p-Tosyl-L-lysine chloromethyl ketone

see 17013 L-1-Chloro-3-tosylamido-7-amino-2-heptanone, p. 25, 138, 351

■ Nα-p-Tosyl-L-phenylalanine chloromethylketone

see 17016 L-1-Chloro-3-tosylamido-4-phenyl-2-butanone, p. 25, 138, 351

■ 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

■ TPA

see 32496 Phorbol (12-myristoyl-13-acetyl), page 80, 322

■ TPCK

see 17016 L-1-Chloro-3-tosylamido-4-phenyl-2-butanone, p. 25, 138, 351

■ TPNH

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced ·Na₄-salt, page 72, 342

■ Transferrin human (Apo) lyophil.

(Siderophilin)

M_r 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:

- Carver, F.J. & Frieden, E. (1978) Biochemistry **17**, 167-72

Cat.No.	Size
36760.01	50 mg

■ Transferrin human (Holo) lyophil., pasteurized

(Siderophilin)

M_r ca. 80 000 ♦ CAS [11096-37-3]

HS 35040090

Storage temperature -15 °C to -25 °C

Iron saturated; iron (µg Fe/g protein): min. 1200.

Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Purity (CAE) min. 98.0 %

Cat.No.	Size
36756.01	25 mg
36756.02	100 mg

■ Trasylol®

see 13718 Aprotinin from bovine lung, page 14, 137, 350

■ D-Trehalose analytical grade

(α-D-Glucopyranosyl-α-D-glucopyranoside)

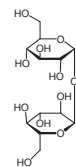
C₁₂H₂₂O₁₁ · 2H₂O ♦ M_r 378.3 ♦ CAS [6138-23-4]

EINECS 202-739-6 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC) min. 99.0 %

[α]_D²⁰ °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 11

■ Trichloroacetic acid analytical grade

C₂HCl₃O₂ ♦ M_r 163.4 ♦ CAS [76-03-9]



ANGER

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



ANGER

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

Cat.No.	Size
36913.01	500 ml
36913.02	1 L

■ **Tricine**

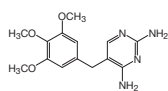
see 37195 N-Tris(hydroxymethyl)methylglycine, page 116, 357

■ **Trimethoprim research grade**

(5-(3,4,5-Trimethoxybenzyl)-2,4-diaminopyrimidine)
 $C_{14}H_{18}N_4O_3$ ♦ M_r 290.32 ♦ CAS [738-70-5]

EINECS 212-006-2 ♦ WGK 1 ♦ HS 29335995

Storage temperature +2 °C to +8 °C



Ph. Eur. 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 %
 Heavy metals (Pb) max. 20 ppm

References:

1. Digrañes, A. et al. (1985) Chemotherapy **31**, 466-71
2. Torel, J. et al. (1985) J. Chromatogr. **323**, 447-50

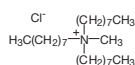
Cat.No.	Size
37049.01	5 g

■ **Trioctylmethylammonium chloride pract.**

(Methyltrioctyl ammonium chloride; Adogen 464; Aliquat® 336)



$C_{25}H_{54}ClN$ ♦ M_r 404.2 ♦
 CAS [5137-55-3]



DANGER

H301-H315-H318-H410 ♦ GGVSE/ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810
 ♦ EINECS 225-896-2 ♦ WGK 3S ♦ HS 29239000

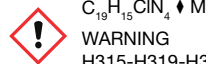
Assay min. 85.0 %

Aliquat is a registered trademark of Cognis Corporation

Cat.No.	Size
37076.01	100 ml
37076.02	500 ml

■ **Triphenyltetrazolium chloride analytical grade**

(TTC; Tetrazolium Red; 2,3,5-Triphenyl-2H-tetrazolium chloride)

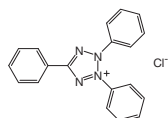


$C_{19}H_{15}ClN_4$ ♦ M_r 334.79 ♦ CAS [298-96-4]

WARNING

H315-H319-H335 ♦ EINECS 206-071-6 ♦
 HS 29339980

Assay min. 98.0 %



Cat.No.	Size
37130.03	10 g
37130.02	50 g

■ **TRIS**

see 37190 Tris(hydroxymethyl)aminomethane, page 115, 151, 357

■ **Tris-(2-carboxyethyl)phosphine hydrochloride**

(TCEP)

$C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ WGK 1 ♦ 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 (TLC) min. 99.0 %

References:

1. Kirkley, T.L. (1989) Anal. Biochem. **180**, 231-36
2. Burns, J.A. (1991) J. Org. Chem. **56**, 2648-50
3. 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-(2-carboxyethyl)phosphine hydrochloride**

electrophoresis grade

$C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ HS 29420000

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. More stable and effective than DTT. Tested for use in sample buffers for SDS-PAGE.

Assay (TLC) min. 99.0 %

Cat.No.	Size
36971.01	1 g
36971.02	5 g

■ **Tris-Glycine/SDS sample buffer**

see 42527 SERVA Tris-Glycine/SDS Sample Buffer (2x), page 97, 250

■ **Tris-MOPS/SDS running buffer**

see 42561 SERVA Tris-MOPS/SDS Electrophoresis Buffer, page 97, 250

■ **Tris-Tricine/SDS running buffer**

see 42552 SERVA Tris-Tricine/SDS Electrophoresis Buffer, page 97, 250

■ **Tris buffer pH 7.5, 1 M solution molecular biology grade**

WGK 2 ♦ 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 ± 0.1

Cat.No.	Size
39791.01	1 L

■ **Tris buffer pH 8.0, 1 M solution molecular biology grade**

WGK 2 ♦ 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 ± 0.1

Cat.No.	Size
39792.01	1 L

■ **Tris buffer pH 8.8, 1 M solution molecular biology grade**

WGK 2 ♦ 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 ± 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 ♦ CAS [90-72-2]

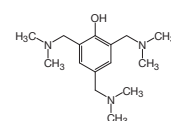
WARNING

H302-H315-H319 ♦ EG-Index 603-069-00-0 ♦

EINECS 202-013-9 ♦ WGK 1L ♦ HS 29215990

Accelerator for epoxy polymerization.

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 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ 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	
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

(TRIS; THAM; Trometamol; 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
USP. Buffer quality for biological and enzymatic 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. 1 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)
 $C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985
DNase, RNase, Protease not detected.

Assay (titr.)	min. 99.9 %
Heavy metals (Pb)	max. 1 ppm
Iron	max. 1 ppm
Arsenic (As)	max. 1 ppm
Magnesium (Mg)	max. 1 ppm

Cat.No.	Size
37186.01	100 g
37186.02	500 g
37186.03	1 kg
37186.04	2,5 kg

Tris(hydroxymethyl)aminomethane research 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

USP. 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
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)

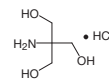
$C_4H_{11}NO_3 \cdot HCl$ ♦ M_r 157.6 ♦ CAS [1185-53-1]

WARNING
H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

For enzymology

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
37192.03	2,5 kg



N-Tris(hydroxymethyl)methyl-3-aminopropane sulfonic acid analytical grade

(TAPS)

$C_7H_{17}NO_6S$ ♦ M_r 243.28 ♦ CAS [29915-38-6]

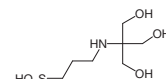
EINECS 249-954-1 ♦ WGK 1 ♦ HS 29221985

MP 238 – 245 °C (dec.). pKa 20 = 8.4. Buffering substance.

Assay (titr.)	min. 99 %
A 1 cm/10 % in water	
230 nm	max. 0.2
260/280 nm	max. 0.07
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	4.5 – 6.5

References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68



Cat.No.	Size
37194.03	100 g

Find Centrifuges,
Thermoshakers and
Aspiration Systems at p. 260

■ 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:

1. Schagger, H & von Jagow, G. V. (1987) Anal. Biochem. **166**, 368 - 379

Cat.No.	Size
37196.01	100 g
37196.02	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 29221985

MP 179 - 187 °C; pKa 20 = 8.15. Buffering substance (1).

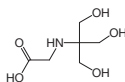
Non-toxic substitute for barbital (2).

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:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77

2. Monthony, J.F. et al. (1978) Clin. Chem. **24**, 1825-7



Cat.No.	Size
37195.01	25 g
37195.02	100 g
37195.03	500 g

■ Triton® X-100

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

HLB 13.5. For the turbidimetric determination of phosphate

(1). Can be used in place of Nonidet NP-40. One of the most frequently used surfactants for the isolation, purification and analysis of membrane components. Suitable for solubilisation of hydrophobic proteins prior to Blue Native PAGE.

Water (KF)	max. 1.0 %
A 1 cm /320 nm 1 % in water	max. 0.4
A 1 cm /360 nm 1 % in water	max. 0.04

® Registered trademark of Union Carbide.

References:

1. Eibl, H. & Lands, W.E.M. (1969) Anal. Biochem. **30**, 51-7

2. See, Y.P. & Fitt, P.S. (1972) Anal. Biochem. **49**, 430-35

3. Campoy, F.J. et al. (1989) Biochem. Soc. Trans. **17**, 676-7

4. Gonzales-Manas, J.M. et al. (1990) Eur. J. Biochem. **188**, 673-8

5. Bayens, W.R.G. et al. (1990) Anal. Chim. Acta **234**, 187-92

6. Krause, F. (2006) Electrophoresis **27**, 2759-81

Cat.No.	Size
37240.01	500 g
37240.02	5 kg

■ Triton® X-100 molecular biology grade

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

DNase, RNase, Protease, Phosphatase not detected.

HLB 13.5.

® Registered trademark of Union Carbide

Cat.No.	Size
39795.01	50 ml
39795.02	250 ml

■ Triton® X-100 for scintillation techniques

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318 ♦ WGK 2 ♦ HS 34021300

HLB 13.5.

Water (KF)	max. 1.0 %
A 1 cm /320 nm 1 % in water	max. 0.4
A 1 cm /360 nm 1 % in water	max. 0.04

® Registered trademark of Union Carbide

Cat.No.	Size
37238.01	500 g
37238.02	2,5 kg

■ Trometamol

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

■ Tromethamine

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

■ Trypaflavine HCl

see 10671 Acriflavine-HCl, page 3, 369

■ Trypsin 1:250 from bovine 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

USP. 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

Total aerobic count plate	none detectable
Moulds and yeasts	<15 /g

Bacterial count

Salmonella, *Staph. aureus*, *Ps.*

aeruginosa,

Enterococcus sp.

Absent in 10 g material

Unit definition: That amount of enzyme that causes hydrolysis of BAEE (benzoylarginine ethyl ester) such that the increase of light absorbance at 253 nm is 0.003 per minute.

Cat.No.	Size
37289.01	25 g
37289.02	100 g

■ Trypsin from porcine pancreas ca. 60 U/mg

2 x cryst. lyophil. salt-free

EC 3.4.21.4 ♦ M_r 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

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.

Substrates and Inhibitors for Trypsin: see cat.no. 37260

Cat.No.	Size
37291.02	250 mg
37291.03	1 g

■ Trypsin inhibitor from bovine lung

see 13718 Aprotinin from bovine lung, page 14, 137, 350

■ Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.

M_r 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:

1. Rachis, J.J. et al. (1962) Arch. Biochem. Biophys. **98**, 471-8
2. Bidlingmeyer, U. et al. (1972) Biochemistry **11**, 3303-10

Cat.No.	Size
37329.01	250 mg

■ Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA

WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Suitable for efficient and gentle detachment of adherent cells from culture surfaces, as well as for tissue digestion.

Trypsin: 0.5 mg/ml (0.05 %)

EDTA: 0.22 mg/ml (0.02 %)

Solvent: PBS, without Ca²⁺ and Mg²⁺

Endotoxin: ≤10 EU/ml

SERVA Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA is a solution containing trypsin and EDTA in phosphate buffered saline (PBS) without Ca²⁺ and Mg²⁺. It is a clear and colourless solution that is 0.2 μm filtered and thus ready to use. Each lot is tested for pH-value, osmolality, and sterility. Efficient detachment and high cell viability could be shown for several adherent cell types.

The trypsin powder is derived from porcine pancreas and tested for porcine parvovirus (PPV), mycoplasma and endotoxin. SERVA Trypsin NB Cell Culture Grade complies to trypsin 1:250.

Cat.No.	Size
37297.01	100 ml
37297.02	10 x 100 ml

■ Trypsin NB from porcine pancreas

EC 3.4.21.4 ♦ M_r 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

Trypsin NB is derived from porcine pancreas of known origin. It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline. Trypsin NB is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≥ 40 μkat/g (Ph. Eur.)

Microbiological examination:

Total aerobic microbial count (TAMC): status

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions.

The activity is stated in microkatal; 1 μkat hydrolyses 1 μmol substrate per second. 1 μkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size
37294.01	10 g
37294.02	50 g
37294.03	250 g

■ Trypsin NB GMP Grade from porcine pancreas

EC 3.4.21.4 ♦ M_r 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

Trypsin NB is derived from porcine pancreas of known origin and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline.

Trypsin NB GMP Grade is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≤ 40 μkat/g (Ph. Eur.)

Loss on drying: ≤ 5.0 %

Microbiological examination:

Total aerobic microbial count (TAMC): ≤10⁴ CFU/g

Total yeast and mould count (TYMC): ≤10² CFU/g

Absence of *Escherichia coli*: must comply

Absence of *Salmonella*: must comply

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions.

The activity is stated in microkatal; 1 μkat hydrolyses 1 μmol substrate per second. 1 μkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size
37296.02	5 kg

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

■ Trypsin NB Premium Grade, MS approved from porcine pancreas

EC 3.4.21.4 ♦ M_r 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

Approved for use in in-gel digestion and mass spectrometry analysis. Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Premium Grade, 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 NB Premium Grade, 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. Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size
37284.01	4 x 25 µg

■ Trypsin NB Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M_r 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 NB 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 NB Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size
37283.01	4 x 25 µg

■ Tryptone from casein pancreatic

HS 35040090

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

■ Tryptone Type-I 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)	min. 12.0 %
Amino nitrogen	min. 3.5 %
Loss on drying	max. 5.0 %
Ash	max. 12.0 %
pH (1 % solution)	6.2 – 7.2
Sodium chloride	max. 5.0 %

Cat.No.	Size
48660.01	250 g
48660.02	1 kg

■ L-Tryptophan research grade

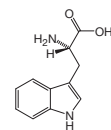
(Trp; L-2-Amino-3-(indolylepropionic acid))

C₁₁H₁₂N₂O₂ ♦ M_r 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Ammonium	max. 200 ppm
Iron (Fe)	max. 20 ppm
Non animal origin	



Cat.No.	Size
37422.02	25 g
37422.03	100 g
37422.04	500 g

■ L-Tryptophan cell culture grade

(Trp; L-2-Amino-3-(indolylepropionic acid))

C₁₁H₁₂N₂O₂ ♦ M_r 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH ₄)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 20 ppm

Cat.No.	Size
47217.01	25 g
47217.02	100 g
47217.03	500 g

■ TTC

see 37130 Triphenyltetrazolium chloride, page 114, 349

■ Tunicamycin from *Streptomyces chartreusis*

M_r ca. 840 ♦ CAS [11089-65-9]



DANGER

H300-H330-H373 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Mixture of homologue nucleoside antibiotics. Consists of one residue each of uracil, a C₁₁-aminodeoxy- dialdose (tunicamine), N-acetyl glucosamine and a fatty acid. The various tunicamycins differ from each other in the chain length of their fatty acid component.

Our preparation contains mainly isomers A, B, C, and D whose fatty acid component contain 15, 16, 17, and 18 C-atoms, respectively. Tunicamycin is active against Gram-positive bacteria, yeast, fungi, and viruses. Inhibits N-linked glycosylation and blocks the formation of N-glycosidic protein carbohydrate linkage; inhibits the first step in the lipid-linked saccharide pathway, i.e. the formation of dolichylpyrophosphoryl-GlcNAc. Soluble in DMF and DMSO.

Protect from light. Keep under argon.

Assay (HPLC) max. 98.0 %

References:

1. Takatsuki, A. et al. (1971) J. Antibiot. **24**, 215
2. Tkacz, J.S. & Lampén, O. (1975) Biochem. Biophys. Res. Commun. **65**, 248
3. Ericson, M. et al. (1977) J. Biol. Chem. **252**, 7431
4. Takatsuki, A. et al. (1977) Agric. Biol. Chem. **41**, 2307-9
5. Elbein, A.D. (1981) Trends Biochem. Sci. **6**, 219-21
6. Elbein, A.D. (1987) Methods Enzymol. **138**, 661-709

Cat.No.	Size
37467.01	5 mg
37467.02	10 mg

■ Tween® 20 molecular biology grade

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)
M_r 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

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)
M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP. 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 dioxan max. 10 ppm
Free ethylene oxide max. 1 ppm
Heavy metals (Ph. Eur.) 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

(Polysorbate 80; Polyoxyethylene sorbitan monooleate, n ca. 20)
M_r ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. 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

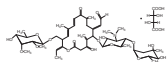
Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic with large lactone ring. Inhibits bacterial protein synthesis at the ribosomal 50S-subunit. Used for the inhibition of mycoplasma in cell culture. 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



■ L-Tyrosine cell culture grade

(Tyr; L-2-Amino-3-(4-hydroxyphenyl)-propionic acid; L-3-(4-Hydroxyphenyl)-alanine)

C₉H₁₁NO₃ ♦ M_r 181.2 ♦ CAS [60-18-4]

EINECS 200-460-4 ♦ HS 29224985

Assay (titr.) min. 99.0 %
Endotoxin ≤ 40.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
47218.01	100 g
47218.02	500 g

■ L-Tyrosine analytical grade

(Tyr; L-2-Amino-3-(4-hydroxyphenyl)-propionic acid; L-3-(4-Hydroxyphenyl)-alanine)

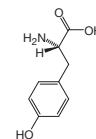
C₉H₁₁NO₃ ♦ M_r 181.2 ♦ CAS [60-18-4]

EINECS 200-460-4 ♦ WGK 1L ♦ HS 29224985

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Ammonium max. 200 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size
37540.02	25 g
37540.03	100 g



■ Uranyl acetate·2H₂O research grade

(CH₃COO)₂UO₂·2H₂O ♦ M_r 424.2 ♦ CAS [6159-44-0]



DANGER

H300-H330-H373-H411 ♦ MAK/TRK 0,25 mg/m³
calculated as uran ♦ EG-Index 092-002-00-3 ♦

GGVSE/ADR 7 UN2910 ♦ IATA 7 UN2910 ♦ EINECS 629-550-5 ♦ 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

(Carbamide; Carbonyl diamide)

CH₄N₂O ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

Ph.Eur., USP.

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)
 $\text{CH}_4\text{N}_2\text{O}$ ♦ M_r 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 2 D-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)
 $\text{CH}_4\text{N}_2\text{O}$ ♦ M_r 60.06 ♦ CAS [57-13-6]
 EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected

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_r 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.

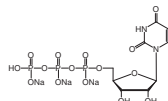
References:

- Kerscher, L. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 8, p. 444-53
- Kaltwasser, H. & Schlegel, H.G. (1966) Anal. Biochem. **16**, 132-8

Cat.No.	Size
37799.01	100 mg
37799.02	250 mg
37799.03	1 g

■ **Uridine-5'-triphosphate- Na_3 -salt** research grade

(UTP)
 $\text{C}_9\text{H}_{12}\text{N}_2\text{O}_{15}\text{P}_3\cdot\text{Na}_3\cdot 2\text{H}_2\text{O}$ ♦ M_r 586.2 ♦ CAS [19817-92-6]
 EINECS 243-347-5 ♦ HS 29199000
 Storage temperature -15 °C to -25 °C



Assay (HPLC) min. 91.0 %
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size
37960.01	250 mg
37960.02	1 g

■ **UTP**

see 37960 Uridine-5'-triphosphate- Na_3 -salt, page 120, 343

■ **L-Valine** cell culture grade

Val; L-2-Amino-3-methylbutyric acid; L-2-Amino-isovaleric acid)
 $\text{C}_5\text{H}_{11}\text{NO}_2$ ♦ M_r 117.15 ♦ CAS [72-18-4]
 EINECS 200-773-6 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.5 %
 Ammonium (NH_4) max. 200 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size
47219.01	25 g
47219.02	100 g
47219.03	500 g

■ **L-Valine** research grade

(Val; L-2-Amino-3-methylbutyric acid; L-2-Amino-isovaleric acid)
 $\text{C}_5\text{H}_{11}\text{NO}_2$ ♦ M_r 117.15 ♦ CAS [72-18-4]
 EINECS 200-773-6 ♦ WGK 1L ♦ HS 29224985



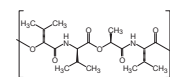
Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Ammonium max. 200 ppm
 Iron (Fe) max. 10 ppm
 Non animal origin

Cat.No.	Size
38064.01	25 g
38064.02	100 g
38064.03	500 g

■ **Valinomycin** research grade

(cyclo(Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val))
 $\text{C}_{54}\text{H}_{90}\text{N}_6\text{O}_{18}$ ♦ M_r 1111.3 ♦ CAS [2001-95-8]



DANGER
 H300-H310-H330 ♦ GGVS/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
38076.03	50 mg
38076.04	250 mg

■ **Vancomycin HCl**

$\text{C}_{66}\text{H}_{75}\text{Cl}_2\text{N}_9\text{O}_{24}\cdot\text{HCl}$ ♦ M_r 1485.7 ♦ CAS [1404-93-9]



WARNING
 H317 ♦ HS 29419000
 Storage temperature +2 °C to +8 °C

Ph.Eur. Mixture of glycopeptide antibiotics. Min. 1050 I.E./mg. Major component: Vancomycin B: min. 93 % (HPLC). Bactericidal against Gram-positive and some Gram-negative bacteria (Neisseria sp.). Inhibits formation of murein during cell wall synthesis. Suitable for cell culture.

References:

- McIntyre, J.J. et al. (1999) Biotechnol. Bioengineering **62**, 576-82
- Daniel, R.A. & Errington, J. (2003) Cell **113**, 767-76
- Severin, A. et al. (2004) J. Biol. Chem. **279**, 3398-407
- Muchova, K. et al. (2011) FEMS Microbiol. Lett. **325**, 92-8

Cat.No.	Size
38125.01	250 mg
38125.02	1 g
38125.03	5 g

■ Versene disodium

see 11280 Ethylenediamine tetraacetic acid- Na_2 -salt, page 43, 138, 147, 320, 366

■ VISKING Dialysis Membranes

see Chapter Dialysis, page 157

■ Vitamin A acetate research grade

(all-trans Retinyl acetate)

$\text{C}_{22}\text{H}_{32}\text{O}_2$ ♦ M_r 328.5 ♦ CAS [127-47-9]



WARNING

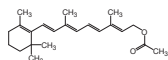
H315-H361d ♦ EINECS 204-844-2 ♦ WGK 1 ♦

HS 29362100

Storage temperature +2 °C to +8 °C

Activity (UV) min. 1 350 000 U/g.

Protect from light and air. Store under argon.



Cat.No.	Size
38220.01	1 g

■ Vitamin B₁ hydrochloride

see 36020 Thiamine-HCl, page 112, 325

■ Vitamin B₁₂ cryst. pure

(Cyanocobalamin; Extrinsic Factor; Antianemic vitamin B)

$\text{C}_{63}\text{H}_{88}\text{N}_{14}\text{O}_{14}\text{PCo}$ ♦ M_r 1355.4 ♦ CAS [68-19-9]

EINECS 200-680-0 ♦ WGK 1L ♦ HS 29362600

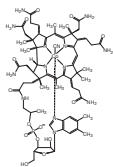
Storage temperature +2 °C to +8 °C

USP, Ph.Eur. Protect from light!

Assay (UV), dried

96.0 - 100.5 %

Non animal origin



Cat.No.	Size
38310.02	500 mg

■ Vitamin B₂

see 34350 Riboflavin, page 88, 324

■ Vitamin B₆

see 33990 Pyridoxine-HCl, page 87, 323

■ Vitamin C

see 14030 L-Ascorbic acid, page 15, 318

■ Vitamin H

see 15060 (+)-Biotin, page 18, 294, 314

■ 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

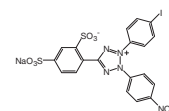
DNase/RNase not detected. Autoclaved.

Cat.No.	Size
39798.03	500 ml

■ WST 1

(2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfophenyl)-2H-tetrazolium,Na-salt)

$\text{C}_{19}\text{H}_{11}\text{N}_5\text{O}_8\text{S}_2\text{Na}$ ♦ M_r 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 20, 294, 344

■ X-Gluc

see 15248 5-Bromo-4-chloro-3-indolyl-β-D-glucuronide-cyclohexylammonium salt, page 20, 344

■ X-phos disodium salt

see 15259 5-Bromo-4-chloro-3-indolyl-phosphate- Na_2 -salt, page 20, 343

■ Xanthine oxidase from buttermilk min. 0.9 U/mg protein suspension

(XOD; Xanthine: oxygen oxidoreductase)

EC 1.1.3.22 ♦ M_r ca. 283 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

For the determination of xanthine and hypoxanthine (1), adenosine, guanosine (2) and total purines (3). Chromatographically purified; ca. 10 mg/ml in 60 % saturated ammonium sulfate containing sodium salicylate and EDTA.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the oxidation of 1 μmole xanthine per minute at 25 °C, pH 7.5, measured by the increase in absorbance in 290 nm (4).

References:

1. Jensen, M.H. & Joergensen, S. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. vol. **7**, p. 125-33
2. Heinz, F. & Reckel, S. (1985) loc. cit. p. 92-100
3. Jensen, M.H. (1985) loc. cit. p. 101-10
4. Kalckar, H.M. (1947) J. Biol. Chem. **167**, 429-43

Cat.No.	Size
38418.01	5 mg
38418.02	25 mg

■ XOD

see 38418 Xanthine oxidase from buttermilk min. 0.9 U/mg protein, page 121, 341

Products for Isoelectric Focusing:
see special chapter at p. 190

■ XTT

(Sodium 3,3'-[[(Phenylamino)carbonyl]-3,4-Tetrazolium]-Bis(4-methoxy-6-nitro)benzenesulfonic acid hydrate)

$C_{22}H_{16}N_7O_{13}S_2Na$ ♦ M_r 674.53 ♦ CAS [111072-31-2]

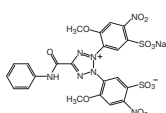
HS 29339980

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

■ Xylan from beech wood pure

CAS [9014-63-5]

EINECS 232-760-6 ♦ WGK 1 ♦ HS 29400000

Cat.No.	Size
38500.02	25 g

■ Xylene cyanol FF

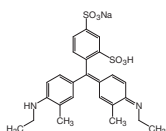
C.I.43535 ♦ $C_{25}H_{27}N_2O_5S_2Na$ ♦ M_r 554.6 ♦
CAS [4463-44-9]



WARNING

H319-H335 ♦ EINECS 224-728-5 ♦ WGK 1 ♦

HS 32049000



Cat.No.	Size
38505.01	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

Assay

min. 99.0 %

MP

145 - 153 °C

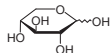
$[\alpha]_{20}^{20}$ °C/D

(c=10 in water, after 24 h)

+19.0 ° to +21.0 °

Heavy metals (Pb)

max. 5 ppm



Cat.No.	Size
38530.01	100 g
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.

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 Agar, Powder 46 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

15 g Agar

For making 1 L 2x liquid medium suspend 46 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:

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
48504.01	460 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

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