

INSTITUTE OF CHEMISTRY
Slovak Academy of Sciences

LIST OF PRODUCTS

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Note: Within individual chapters, the products are arranged in alphabetical order.

Institute of Chemistry Slovak Academy of Sciences

The Institute of Chemistry is one of the first institutes of the Slovak Academy of Sciences. It came into existence in 1953 by the fusion of the Research Institute for Pharmacy and Biochemistry and the Research Institute for Sugars and Carbohydrates. Its original name, the Institute of Chemical Technology of Organic Compounds, changed into the current name in 1955.

- The research activities are focused on the chemistry and biochemistry of saccharides in following main directions:
- Synthesis and structure of biologically important mono- and oligo-saccharides and their derivatives
- Structure and functional properties of polysaccharides, their derivatives, and conjugates with other plant polymers
- Structure, function, and mechanism of action of glycanases
- Development of physicochemical methods for structural analysis of carbohydrates
- Gene engineering and nutritional and biologically active proteins
- Ecology, taxonomy, and phylogenesis of yeasts and yeasts-like fungi
- Development of technologies for isolation of natural compounds and preparation of saccharides and their derivatives for commercial purposes

The Institute has gained an international reputation and position of well evaluated research establishment expanding its international cooperation with foremost research institutes and companies all over the world.

Since 1962, the Institute has been housing the Culture Collection of Yeasts (CCY) which is a member of the European Culture Collections' Organization (ECCO) and the World Federation of Culture Collections (WFCC).

The Institute has pilot-plant facilities where a series of carbohydrates are produced on a commercial scale since 1968. We are currently the sole manufacturer of some of the rare saccharides.

The Products

This list of products includes most of the less common monosaccharides (tetroses, pentoses, hexoses, and certain heptoses) and some oligosaccharides. Also produced are polysaccharides with covalently bound dyes for use in enzymology, a series of 1-deoxy-1-nitroalditols and a few other related compounds. The products are manufactured by processes based on results of research conducted in other laboratories of the Institute. For instance, the epimerization of monosaccharides catalyzed by molybdate ions (the Bilik reaction) originated at the Institute as well as a lot of work on the synthesis of sugars by the nitromethane condensation and on separation methods.

We are doing our best to supply products of the highest quality. All products are tested for the presence of impurities with the use of the most sensitive detection agents and by high-performance liquid chromatography. We can also meet special requirements of individual customers. Shipments are accompanied by a certificate of analysis and a safety data sheet.

Supplies can be made either in small package sizes for laboratory use or in bulk quantities. We keep all items in stock in reasonable amounts so that deliveries can take place almost immediately on receiving the orders.

All products should be stored in a dry place at room temperature unless otherwise specified.

Additionally, we are able to prepare other carbohydrates and their derivatives not listed in this catalogue (based on custom synthesis). Any inquiries in this respect will be welcome.

Prices (dependent on quantity of products) and delivery time are available on request.

General Information

The products are arranged by classes of compounds. Synonyms are given where we considered it useful. For each compound, the entry includes the Chemical Abstracts Service Registry Number (given in brackets), the molecular and structural formula, the formula weight (FW), the most recent Beilstein reference (Beilst.), principal analytical data and in some cases, information about the potential uses with literature references.

Safety Data

S24/25 Avoid contact with skin and eyes

Abbreviations

Ac	acetyl
Glc	glucopyranosyl
HPLC	high performance liquid chromatography
Me	methyl
Spec.	specific
Chromatogr.	chromatography

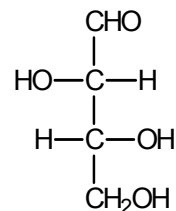
All chemicals supplied by the Institute of Chemistry of the Slovak Academy of Sciences are for laboratory use only. They are not to be used as pharmaceuticals, cosmetics, agricultural chemicals, or food additives. The Institute takes no responsibility in connection with the final use of the supplied products.

I. MONOSACCHARIDES

1. TETROSES

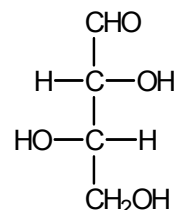
D(-)-THREOSE

[95-43-2], C₄H₈O₄, FW 120.1, *Beil.* 1, IV 4173
Spec. rotation $[\alpha]_D$ $-11.0 \pm 1^\circ$ (c=2, H₂O, 20°C)
Paper chromatogr. homogeneous material
Appearance syrup (freeze-dried)
Storage temperature below +5°C
Safety data S24/25



L(+)-THREOSE

[95-44-3], C₄H₈O₄, FW 120.1, *Beil.* 1, IV 4173
Spec. rotation $[\alpha]_D$ $+11.0 \pm 1^\circ$ (c=2, H₂O, 20°C)
Paper chromatogr. homogeneous material
Appearance syrup (freeze-dried)
Storage temperature below +5°C
Safety data S24/25

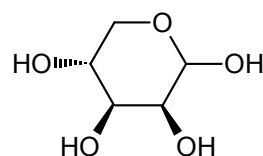


2. PENTOSES

D(-)-LYXOSE

(D-Lyxopyranose)

[1114-34-7], C₅H₁₀O₅, FW 150.1, *Beil.* 1, IV 4230
Spec. rotation $[\alpha]_D$ $-13.5 \pm 1^\circ$ (c=2, H₂O, 20°C)
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance white crystalline powder
Solubility in water clear colourless solution
Safety data S24/25



L(+)-LYXOSE

(L-Lyxopyranose)

[1949-78-6], C₅H₁₀O₅, FW 150.1, *Beil. 1*, IV 4230

Spec. rotation [α]_D +13.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

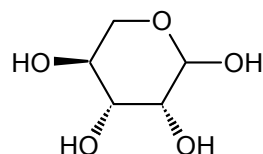
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(+)-RIBOSE

(L-Ribopyranose)

[24259-59-4], C₅H₁₀O₅, FW 150.1, *Beil. 1*, IV 4214

Spec. rotation [α]_D +20.5±1° (c=2, H₂O, 20°C)

Melting point 82–84°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

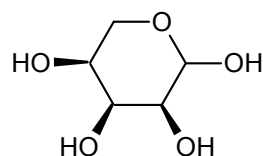
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(-)-XYLOSE

(L-Xylopyranose)

[609-06-3], C₅H₁₀O₅, FW 150.1, *Beil. 1*, IV 4228

Spec. rotation [α]_D -18.8±1° (c=2, H₂O, 20°C)

Melting point 146–150°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

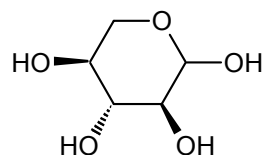
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



3. HEXOSES

D(+)-ALLOSE

(D-Allopyranose)

[7283-09-2], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4299

Spec. rotation [α]_D +14.0±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

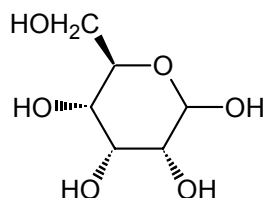
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(-)-ALLOSE

(L-Allopyranose)

[39392-62-6], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4300

Spec. rotation [α]_D -14.0±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

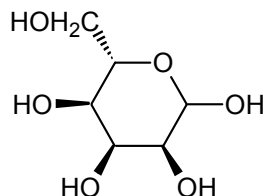
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



D(+)-ALTROSE

(D-Altropyranose)

[1990-29-0], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4300

Spec. rotation [α]_D +32.0±1° (c=2, H₂O, 20°C)

Melting point 103–105°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

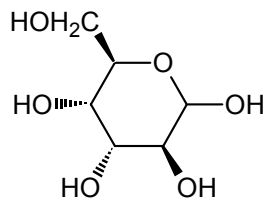
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(-)-ALTROSE

(L-Altropyranose)

[1949-88-86], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4301

Spec. rotation $[\alpha]_D$ $-32.0 \pm 1^\circ$ (c=2, H₂O, 20°C)

Melting point 103–105°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

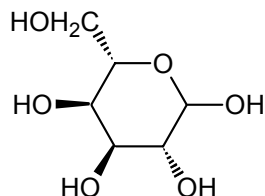
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(-)-GALACTOSE

(L-Galactopyranose)

[15572-79-9], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4343

Spec. rotation $[\alpha]_D$ $-80.0 \pm 1^\circ$ (c=2, H₂O, 20°C)

Melting point 163–165°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

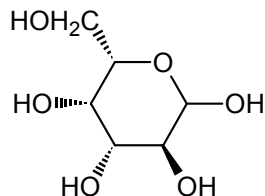
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L(-)-GLUCOSE

(L-Glucopyranose)

[921-60-8], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4327

Spec. rotation $[\alpha]_D$ $-51.0 \pm 1^\circ$ (c=2, H₂O, 20°C)

Melting point 141–143°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

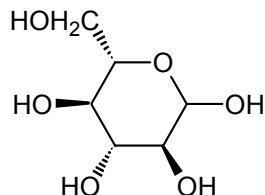
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



D(-)-GULOSE

(D-Gulopyranose)

[4205-23-6], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4333

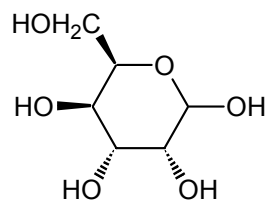
Spec. rotation [α]_D -23.0±1° (c=2, H₂O, 20°C)

Paper chromatogr. homogeneous material

Appearance syrup (freeze-dried)

Solubility in water clear colourless solution

Safety data S24/25



L(+)-GULOSE

(D-Gulopyranose)

[6027-89-0], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4334

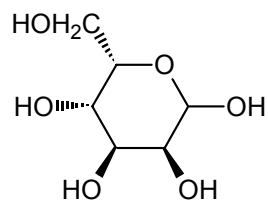
Spec. rotation [α]_D +23.0±1° (c=2, H₂O, 20°C)

Paper chromatogr. homogeneous material

Appearance syrup (freeze-dried)

Solubility in water clear colourless solution

Safety data S24/25



D(+)-IDOSE and L(-)-IDOSE

These sugars form syrups of low chemical stability and they are rather difficult to handle. We offer instead the key intermediates: 1-deoxy-1-nitro-D-iditol and 1-deoxy-1-nitro-L-iditol (see page 23). Both are crystalline compounds with excellent storage stability. The free hexoses can be easily prepared from them, e.g. by the method of Sowden, J.C., Fischer, H.O.L., *J. Am. Chem. Soc.* **69**, 1963 (1947).

L(-)-MANNOSE

(L-Mannopyranose)

[10030-80-5], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4333

Spec. rotation [α]_D -14.2±0.5° (c=2, H₂O, 20°C)

Melting point 130–132°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

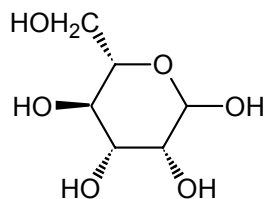
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

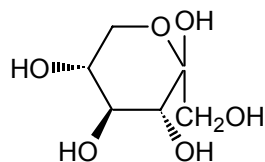
Safety data S24/25



D(+)-SORBOSE

(D-Sorbopyranose)

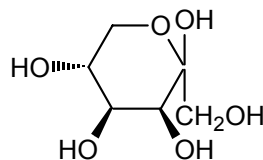
[3615-56-3], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4411
Spec. rotation $[\alpha]_D$ +42.5±1° (c=2, H₂O, 20°C)
Melting point 162–164°C
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance white crystalline powder
Solubility in water clear colourless solution
Safety data S24/25



D(-)-TAGATOSE

(D-Tagatopyranose)

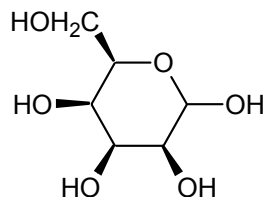
[87-81-0], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4414
Spec. rotation $[\alpha]_D$ -6.0±0.5° (c=2, H₂O, 20°C)
Melting point 129–131°C
HPLC assay min. 98%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance white crystalline powder
Solubility in water clear colourless solution
Safety data S24/25



D(+)-TALOSE

(D-Talopyranose)

[7282-81-7], C₆H₁₂O₆, FW 180.2, *Beil.* 1, IV 4344
Spec. rotation $[\alpha]_D$ +19.0±0.5° (c=2, H₂O, 20°C)
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance white crystalline powder
Solubility in water clear colourless solution
Safety data S24/25



L(-)-TALOSE

(L-Talopyranose)

[23567-25-1], C₆H₁₂O₆, FW 180.2, *Beil. 1*, IV 4346

Spec. rotation [α]_D -19.0±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

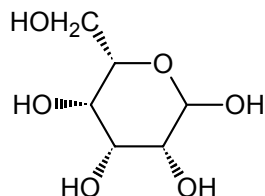
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



4. HEPTOSES

D-glycero-D-galacto-HEPTOSE

(α-D-Mannoheptose)

[5328-64-3], C₇H₁₄O₇, FW 210.2, *Beil. 1*, IV 4438

Spec. rotation [α]_D +68.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

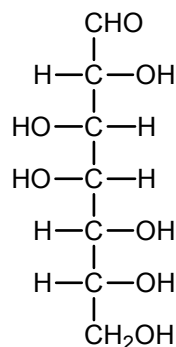
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



L-glycero-L-galacto-HEPTOSE

(α-L-Mannoheptose)

[20585-65-3], C₇H₁₄O₇, FW 210.2, *Beil. 1*, IV 4440

Spec. rotation [α]_D -68.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

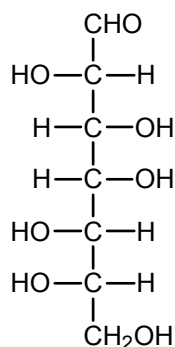
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



D-glycero-L-gluco-HEPTOSE

(β-D-Galactoheptose)

[23102-92-3], C₇H₁₄O₇, FW 210.2, *Beil.* 1, IV 4443Spec. rotation [α]_D -52.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

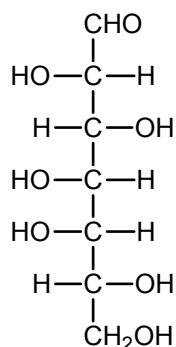
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25

**L-glycero-D-gluco-HEPTOSE**

(β-L-Galactoheptose)

[84142-52-8], C₇H₁₄O₇, FW 210.2Spec. rotation [α]_D +52.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

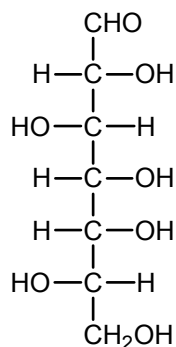
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25

**D-glycero-D-talo-HEPTOSE**

(β-D-Mannoheptose)

[23102-92-3], C₇H₁₄O₇, FW 210.2, *Beil.* 1, IV 4440Spec. rotation [α]_D +14.5±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

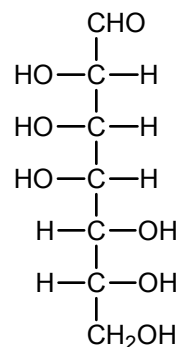
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



5. ALDITOLS

D(+)-ARABINITOL

(D-Arabitol)

[488-82-4], C₅H₁₂O₅, FW 152.1, *Beil.* 1, IV 2832

Spec. rotation [α]_D +132.5±2° (c=0.4, molybdic acid, 20°C)

Melting point 103–104°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

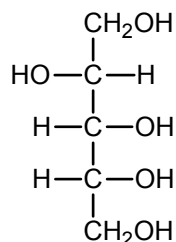
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S22-24/25



L(-)-ARABINITOL

(L-Arabitol)

[7643-75-6], C₅H₁₂O₅, FW 152.1, *Beil.* 1, IV 2832

Spec. rotation [α]_D -132.5±2° (c=0.4, molybdic acid, 20°C)

Melting point 101–104°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

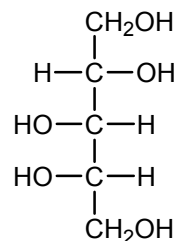
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S22-24/25



L-MANNITOL

[643-01-6], C₆H₁₄O₆, FW 182.2, *Beil.* 1, IV 2843

Melting point 165–166°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

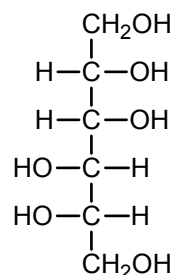
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



II. DISACCHARIDES

D(+)-CELLOBIOSE

(4-O-β-D-Glucopyranosyl-D-glucopyranose)

[528-50-7], C₁₂H₂₂O₁₁, FW 342.3, *Beil.* 1717, V 191

Spec. rotation [α]_D +34.5±0.5° (c=2, H₂O, 20°C)

Melting point 235–238°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

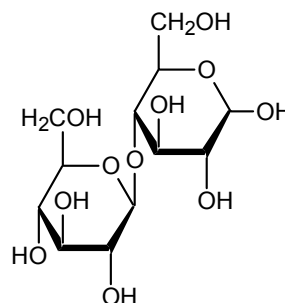
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



D(+)-MELIBIOSE MONOHYDRATE

(6-O-α-D-Galactopyranosyl-D-glucopyranose)

[585-99-9], C₁₂H₂₂O₁₁.H₂O, FW 360.3, *Beil.* 31, 421

Spec. rotation [α]_D +140.0±2° (c=2, H₂O, 20°C)

Melting point 179–181°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

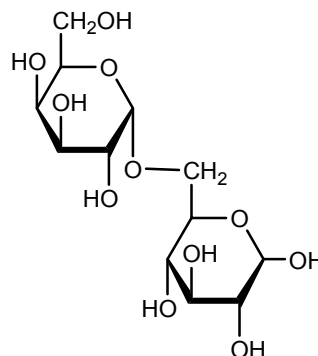
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



D(+)-TURANOSE

(3-O- α -D-Glucopyranosyl-D-fructose)

[547-25-1], C₁₂H₂₂O₁₁, FW 342.3, *Beil.* 17/7, V 213

Spec. rotation [α]_D +76.0 \pm 1° (c=2, H₂O, 20°C)

Melting point 168–170°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

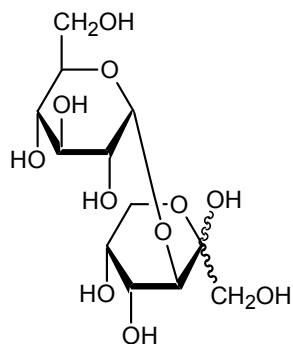
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



III. TRISACCHARIDES

D(+)-MELEZITOSE MONOHYDRATE

(O- α -D-Glucopyranosyl-(1 \rightarrow 3)- β -D-fructofuranosyl- α -D-glucopyranoside)

[10030-67-8], C₁₈H₃₂O₁₆.H₂O, FW 522.45, *Beil.* 31, 466

Spec. rotation [α]_D +88.5 \pm 2° (c=4, H₂O, 20°C, 24 h)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

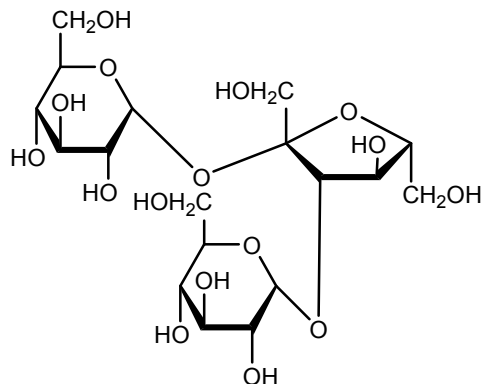
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



IV. OLIGOSACCHARIDES

1. CELLO-OLIGOSACCHARIDES

Prepared by acetolysis of cellulose. Substrates for cellulases and β -glucosidases.

D(+)-CELLOHEPTAOSE

($[\beta\text{-D-Glc-(1}\rightarrow\text{4)}]_6\text{-D-Glc}$)

$\text{C}_{42}\text{H}_{72}\text{O}_{36}$, FW 1153.0

HPLC assay	min. 97%
Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

D(+)-CELLOHEXAOSE

($[\beta\text{-D-Glc-(1}\rightarrow\text{4)}]_5\text{-D-Glc}$)

$\text{C}_{36}\text{H}_{62}\text{O}_{31}$, FW 990.8

HPLC assay	min. 97%
Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

D(+)-CELLO-OLIGOSACCHARIDES

An unresolved mixture of cello-oligosaccharides, DP 2–7

Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

D(+)-CELLOPENTAOSE

([β -D-Glc-(1 \rightarrow 4)]₄-D-Glc)

[2240-27-9], C₃₀H₅₂O₂₆, FW 828.7

HPLC assay min. 97%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Appearance white powder
Storage temperature below 25°C

D(+)-CELLOTETRAOSE

([β -D-Glc-(1 \rightarrow 4)]₃-D-Glc)

[38819-01-1], C₂₄H₄₂O₂₁, FW 666.6

Spec. rotation [α]_D +10.0 \pm 1° (c=0.2, H₂O, 20°C)
HPLC assay min. 98%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Appearance white powder
Storage temperature below 25°C

D(+)-CELLOTRIOSE

([β -D-Glc-(1 \rightarrow 4)]₂-D-Glc)

[33404-34-1], C₁₈H₃₂O₁₆, FW 504.4

Spec. rotation [α]_D +19.5 \pm 1° (c=0.2, H₂O, 20°C)
HPLC assay min. 98%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Appearance white powder
Storage temperature below 0°C

2. XYLOGLUCAN OLIGOSACCHARIDES (XGOs)

Prepared by limited hydrolysis of tamarind seed xyloglucan (XG) with *Trichoderma* cellulase. Substrates for xyloglucan endo-trans-glycosylase (XET). Plant growth stimulators.

HEPTASACCHARIDE, Glc₄Xyl₃, (XXXG)*

Spec. rotation [α] _D	+56.0±1° (c=0.2, H ₂ O, 20°C)
HPLC assay	min. 97%
Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

NONASACCHARIDE, Glc₄Xyl₃Gal₂, (XLLG)*

Spec. rotation [α] _D	+56.5±1° (c=0.2, H ₂ O, 20°C)
HPLC assay	min. 97%
Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

OCTASACCHARIDE, Glc₄Xyl₃Gal, (XLXG+XXLG)*

Spec. rotation [α] _D	+46.5±1° (c=0.2, H ₂ O, 20°C)
HPLC assay	min. 97%
Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

XYLOGLUCAN OLIGOSACCHARIDES (MONOMERS)

An unresolved mixture of G4 monomers (hepta-, octa- and nonasaccharide) from tamarind seed XG

Ash (sulphated)	max. 0.05%
Heavy metals (Pb)	<5 ppm
Appearance	white powder
Storage temperature	below 25°C

Note: *Abbreviated nomenclature according to Fry, S.C. et al., *Physiol. Plantarum*, **89**, 1 (1993).

V. POLYSACCHARIDES

4-O-METHYL-D-GLUCURONO-D-XYLAN from beechwood

Poly[β -D-xylopyranose-(1 \rightarrow 4)] containing single side chains of 4-O-methyl- α -D-glucopyranosyluronic acid residue. Structure confirmed by ^{13}C NMR spectroscopy.

Pure

[9062-57-1]

Spec. rotation $[\alpha]_{\text{D}}$ $-60.0 \pm 5^{\circ}$ ($c=0.5$, 1% NaOH, 20°C)

D-Xylose $>95\%$ of neutral sugars

Xyl : Uronic acid $10 \pm 2 : 1$

Nitrogen 0%

Ash (sulphated) approx. 2.5%

Molecular weight (M_n) approx. 18000 Da

The sodium salt of the xylans produces viscous, turbid dispersions in water with pseudoplastic to plastic behaviour and thixotropy at concentrations higher than 1%. The xylans are applicable in textile printing and as tablet binder and disintegrants in pharmacy.

Ref.: Ebringerová, A., *Das Papier*, **46**, 725 (1992).

POTASSIUM PECTATES and PECTINATES

Potassium pectates (polygalacturonates) and potassium pectinates (partially methoxylated polygalacturonates) with an exactly defined degree of esterification of the carboxyl groups in the range of 0 – 90% with a statistical arrangement of free carboxyl groups. The products are prepared from citrus fruit or apple pectin. The degree of esterification of the carboxyl groups determines the properties and possible areas of application. More information about these products is available on request. They are suitable for the preparation of calcium pectate spherical gels for the immobilization of enzymes, cells, microorganisms, etc.

Ref.: Gemeiner, P. et al., *Folia Microbiol.*, **34**, 214 (1989).

DYED POLYSACCHARIDES

Listed below are some polysaccharides with covalently bound dyes for the use in enzymology, molecular biology and biotechnology, e.g. for screening of enzyme producers and positive transformants, for the detection of enzymes in electrophoretic gels and for the assay of enzymes. Detailed instructions for their use can be supplied free of charge with each delivery.

OSTAZIN BRILLIANT RED H-3B HYDROXYETHYL CELLULOSE (OBR-HEC)

Water-soluble conjugate of cellulose with approximately 15% (w/w) of covalently bound dye Ostazin Brilliant Red H-3B.

Chromogenic substrate for *endo*- β -1,4-glucanase (cellulase). The dye is the disodium salt of 1-amino-2-sulpho-4-[3-(2-sulphoethylsulphonylanilino)]anthraquinone.

Refs.: Biely, P. et al., Anal. Biochem., **144**, 142 (1985).

Biely, P. et al., *ibid*, **144**, 147 (1985).

Farkaš, V. et al., FEMS Microbiol. Letters, **28**, 137 (1985).

REMAZOL BRILLIANT BLUE R 4-O-METHYL-D- GLUCURONOXYLAN

(RBB-Xylan, 4-O-Methyl-D-glucuronoxylan-Remazol
Brilliant Blue R)

Water-soluble beechwood or birchwood 4-O-Methyl-D-glucuronoxylan containing approximately 13% (w/w) of covalently bound dye Remazol Brilliant Blue R.

Chromogenic substrate for *endo*- β -1,4-xylanase. The dye is the disodium salt of 1-amino-2-sulpho-4-[4-(2-sulphatoethylsulphonylanilino)]-anthraquinone.

VI. MISCELLANEOUS

1,6-ANHYDRO- β -D-GLUCOPYRANOSE

(Levoglucosan)

[498-07-7], C₆H₁₀O₅, FW 162.1, *Beil.* **19/3**, V 498

Spec. rotation $[\alpha]_D$ $-65.0 \pm 1^\circ$ (c=2, H₂O, 20°C)

Melting point 180–182°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

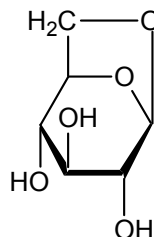
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



1,6-ANHYDRO- β -D-GLUCOSE 2,3,4-TRI-O-ACETATE

(Levoglucosan triacetate)

[13242-55-2], C₁₂H₁₆O₈, FW 288.3, *Beil.* **19/3**, V 506

Spec. rotation $[\alpha]_D$ $-49.5 \pm 1^\circ$ (c=4, MeOH, 20°C)

Melting point 180–182°C

HPLC assay min. 99%

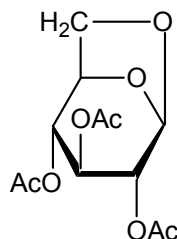
Ash (sulphated) max. 0.05%

Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Safety data S24/25



1-DEOXY-1-NITRO-D-GALACTITOL

[20971-06-6], C₆H₁₃NO₇, FW 211.2

Spec. rotation $[\alpha]_D$ $+4.2 \pm 0.5^\circ$ (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

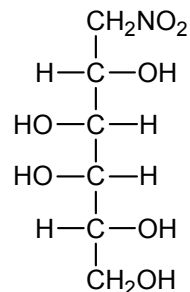
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



1-DEOXY-1-NITRO-L-GALACTITOL

[94481-72-8], C₆H₁₃NO₇, FW 211.2

Spec. rotation [α]_D -4.2±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

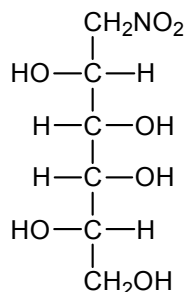
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



1-DEOXY-1-NITRO-D-IDITOL HEMIHYDRATE

[96613-89-7], C₆H₁₃NO₇.1/2 H₂O, FW 220.2

Spec. rotation [α]_D +3.3±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

Heavy metals (Pb) <5 ppm

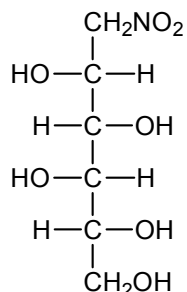
Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25

(An intermediate for the preparation of D-idose)



1-DEOXY-1-NITRO-L-IDITOL HEMIHYDRATE

[96613-89-7], C₆H₁₃NO₇.1/2 H₂O, FW 220.2

Spec. rotation [α]_D -3.3±0.5° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

Heavy metals (Pb) <5 ppm

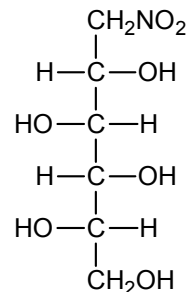
Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25

(An intermediate for the preparation of L-idose)



1-DEOXY-1-NITRO-D-MANNITOL

[14199-83-8], C₆H₁₃NO₇, FW 211.2, *Beil. 1*, IV 2838

Spec. rotation [α]_D -7.0±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

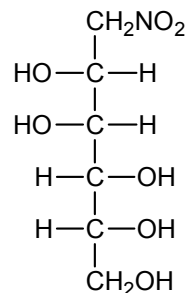
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



1-DEOXY-1-NITRO-L-MANNITOL

[6027-42-5], C₆H₁₃NO₇, FW 211.2, *Beil. 1*, III 2383

Spec. rotation [α]_D +7.0±1° (c=2, H₂O, 20°C)

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

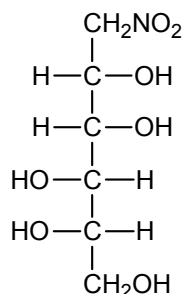
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

Solubility in water clear colourless solution

Safety data S24/25



2-DEOXY-L-RIBOSE

(L-erythro- α -Deoxypentose)

[18546-37-7], C₅H₁₀O₄, FW 134.1, *Beil. 1*, IV 4183

Spec. rotation [α]_D +57.0±1° (c=2, H₂O, 20°C)

Melting point 85–88°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

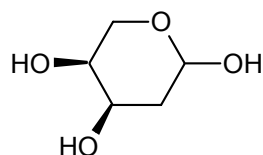
Heavy metals (Pb) <5 ppm

Paper chromatogr. homogeneous material

Appearance white crystalline powder

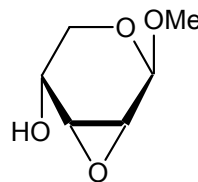
Solubility in water clear colourless solution

Safety data S24/25



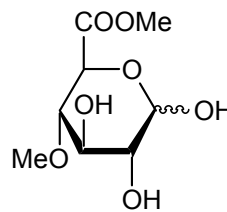
METHYL 2,3-ANHYDRO- β -D-RIBOPYRANOSIDE

[3150-13-8], C₆H₁₀O₄, FW 146.1, *Beil.* 19, IV 982
Spec. rotation $[\alpha]_D$ $-57.0 \pm 1^\circ$ (c=1, CHCl₃, 20°C)
Melting point 51–53°C
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance white crystalline powder
Storage temperature below 25°C
Safety data S24/25



METHYL 4-O-METHYL-D-GLUCOPYRANOSYLURONATE

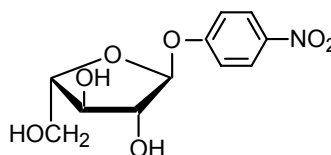
BRN [5024545], C₈H₁₄O₇, FW 222.2
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Paper chromatogr. homogeneous material
Appearance colourless syrup
Solubility in water clear colourless solution
Storage temperature below 5°C
Safety data S24/25



(A stable derivative of 4-O-methyl-D-glucuronic acid. Sodium salt of the acid can be obtained by treating the ester with one equivalent of NaOH)

p-NITROPHENYL α -L-ARABINOFURANOSIDE

[6892-58-6], C₁₁H₁₃NO₇, FW 271.2, *Beil.* 17/6, V 192
Spec. rotation $[\alpha]_D$ $-210 \pm 1^\circ$ (c=2, MeOH, 20°C)
Melting point 159–160°C
HPLC assay min. 99%
Ash (sulphated) max. 0.05%
Heavy metals (Pb) <5 ppm
Appearance white solid
Storage temperature below 25°C
Safety data S24/25



(A substrate for α -L-arabinofuranosidase)

p-NITROPHENYL *trans*-FERULATE

C₁₆H₁₃NO₆, FW 315.3

Melting point 176–178°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

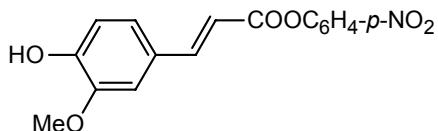
Heavy metals (Pb) <5 ppm

Appearance white solid

Storage temperature below 25°C

Safety data S24/25

(A substrate for feruloyl esterase)



p-NITROPHENYL 5-O-*trans*-FERULOYL- α -L-ARABINOFURANOSIDE

C₂₁H₂₁NO₁₀, FW 447.4

Spec. rotation [α]_D -89±1° (c=1, MeOH, 20°C)

Melting point 143–144°C

HPLC assay min. 99%

Ash (sulphated) max. 0.05%

Heavy metals (Pb) <5 ppm

Appearance white solid

Storage temperature below 25°C

Safety data S24/25

(A new substrate for feruloyl esterase)

