SIGMA-ALDRICH

3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

D-(+)-Maltose monohydrate

Product Number **M5885**
Store at Room Temperature

Product Description

Molecular Formula: $C_{12}H_{22}O_{11} \cdot H_2O$
Molecular Weight: 360.3
CAS Number: 6363-53-7
Melting point: 102-103 °C[1,2]
Specific Rotation: +130.4° ± 1.3°
(40 mg/ml H_2O, 20 °C) calculated on the basis of the monohydrate.[1,3]
Synonyms: 4-O-α-D-Glucopyranosyl-D-glucose, malt sugar, maltobiose[1]

Maltose is a component of starch and glycogen. It is a sugar composed of 2 α-D-glucose molecules[4] coupled by an α(1→4) glycosidic bond. It is a reducing sugar with one anomeric carbon not linked in an anomeric bond. It contains a hemiacetal function and can mutarotate. Maltose is one product generated from starch and glycogen by the action of α-amylase.[5] Maltose can be further hydrolyzed to glucose by the action of α-glucosidase (maltase), an enzyme commonly found in yeast[6] and many other sources.[7] It is called malt sugar when it is formed in fermenting grains during the production of alcoholic beverages.

Maltose is used as a sweetener with about one-third the sweetness of sucrose and as a nutrient in culture media. It is used in pharmaceutical formulations and as a parenteral supplement of sugar for diabetics.[1] It is easily digested by humans.

Maltose is available as the following products:
M5885 From potato.
M5895 Cell culture tested.
M9171 SigmaUltra tested for trace elements.
M2250 Minimum 95% purity.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg per ml).

References

1. The Merck Index, 11th Ed., Entry# 5536.
2. CRC Handbook of Chemistry and Physics, 74th Ed., Lide, D.R., ed., CRC Press (Boca Raton, FL: 1993), p. 3-314.
3. Specifications and Criteria for Biochemical Compounds, 3rd Ed., National Research Council, National Academy Press (Washington, DC: 1972), p. 43.
4. The Condensed Chemical Dictionary, 8th Ed., G. G. Hawley, ed., Van Nostrand Reinhold Co., 1971, page 539.
5. Bernfeld, P., Meth. Enzymol., **1**, 149-158 (1955).
6. Halvorson, H., Meth. Enzymol., **8**, 559 (1966).
7. Schomberg, D. and Salzmann, M., Enzyme Handbook, Vol. 4 (1991), α-glycosidase 3.2.1.20.

RLG/JRC 5/06