

Dextrin is available from suppliers in a number of modified forms and mixtures such as dextrimaltose, a mixture of maltose and dextrin obtained by the enzymatic action of barley malt on corn flour. It is a light, amorphous powder, readily soluble in milk or water.

Crystal Gum is a grade of dextrin containing carbohydrate not less than 98% of dry weight. *Caloreen* has been described as dextrin consisting predominantly of polysaccharides containing an average of 5 dextrose molecules, with a mean molecular weight (MW) of 840,⁽⁹⁾ and also described as bimodal distribution consisting of 67% 'low' MW fraction (<12 glucose subunits) and a 33% 'high' MW fraction (>12 glucose subunits); weight average MW 7000 Da, which does not change after heating.⁽¹⁰⁾

Dextrin has been used as a source of carbohydrate by people with special dietary requirements because it has a low electrolyte content and is free of lactose and sucrose.⁽⁹⁾ Dextrin is also used in cosmetics.

A specification for dextrin is contained in the *Food Chemicals Codex* (FCC).⁽¹²⁾

The EINECS number for dextrin is 232-675-4. The PubChem Compound ID (CID) for dextrin is 62698.

19 Specific References

- 1 Testera RF, Qi X. β -Limit dextrin – properties and applications. *Food Hydrocolloids* 2011; 25(8): 1899–1903.
- 2 Alyani K, *et al.* Use of carbohydrates, including dextrans, for oral delivery. *Starch* 2011; 63: 424–431.
- 3 Modi SA, *et al.* Design and evaluation of sustained release drug delivery system of metoclopramide hydrochloride for emesis. *Int J Pharm Technol* 2011; 3(2): 2590–2598.
- 4 Carvalho V, *et al.* Self-assembled dextrin nanogel as protein carrier: controlled release and biological activity of IL-10. *Biotechnol Bioeng* 2011; 108(8): 1977–1986.

- 5 Jan D, *et al.* Coated dextrin microcapsules of amlodipine incorporable into orally disintegrating tablets for geriatric patients. *Biomed Pharmacother* 2014; 68: 1117–1124.
- 6 Hardwicke JT, *et al.* The effect of dextrin-rhEGF on the healing of full-thickness, excisional wounds in the (db/db) diabetic mouse. *J Control Release* 2011; 152(3): 411–417.
- 7 Sun J, *et al.* Characterization of Dextrans with different Dextrose Equivalents. *Molecules* 2010; 15(8): 5162–5173.
- 8 Sweet DV, ed. *Registry of Toxic Effects of Chemical Substances*. Cincinnati: US Department of Health, 1987; 1859.
- 9 Berlyne GM, *et al.* A soluble glucose polymer for use in renal failure and calorie-deprivation states. *Lancet* 1969; i: 689–692.
- 10 Mistry C. The Beginning of Icodextrin. *Perit Dial Int* 2011; 31(Suppl. 2): S49–S52.
- 11 Nestlé Health Science. Product datasheet: Caloreen. <http://www.nestle-healthscience.co.uk/asset-library/documents/products/data-sheets/data%20card%20caloreen.pdf> (Accessed 5 March 2015).
- 12 *Food Chemicals Codex*. [online] Bethesda, MD: United States Pharmacopeia. <http://publications.usp.org> (accessed 31 March 2017).

20 General References

- French D. Chemical and physical properties of starch. *J Animal Sci* 1973; 37: 1048–1061.
- Satterthwaite RW, Iwinski DJ. Starch dextrans. In: Whistler RL, Bemiller JN, eds. *Industrial Gums*. New York: Academic Press, 1973; 577–599.

21 Author

N Culver.

22 Date of Revision

4 May 2017.

Dextrose

1 Nonproprietary Names

BP: Glucose Monohydrate

PhEur: Glucose Monohydrate

USP–NF: Dextrose

2 Synonyms

Blood sugar; *Caridex*; *Cerelose* 2001; *C*PharmDex*; *Dextrofin*; D-(+)-glucose monohydrate; glucosum monohydricum; grape sugar; *Lycadex PF*; *Meritose*; starch sugar; *Tabfine D-100*.

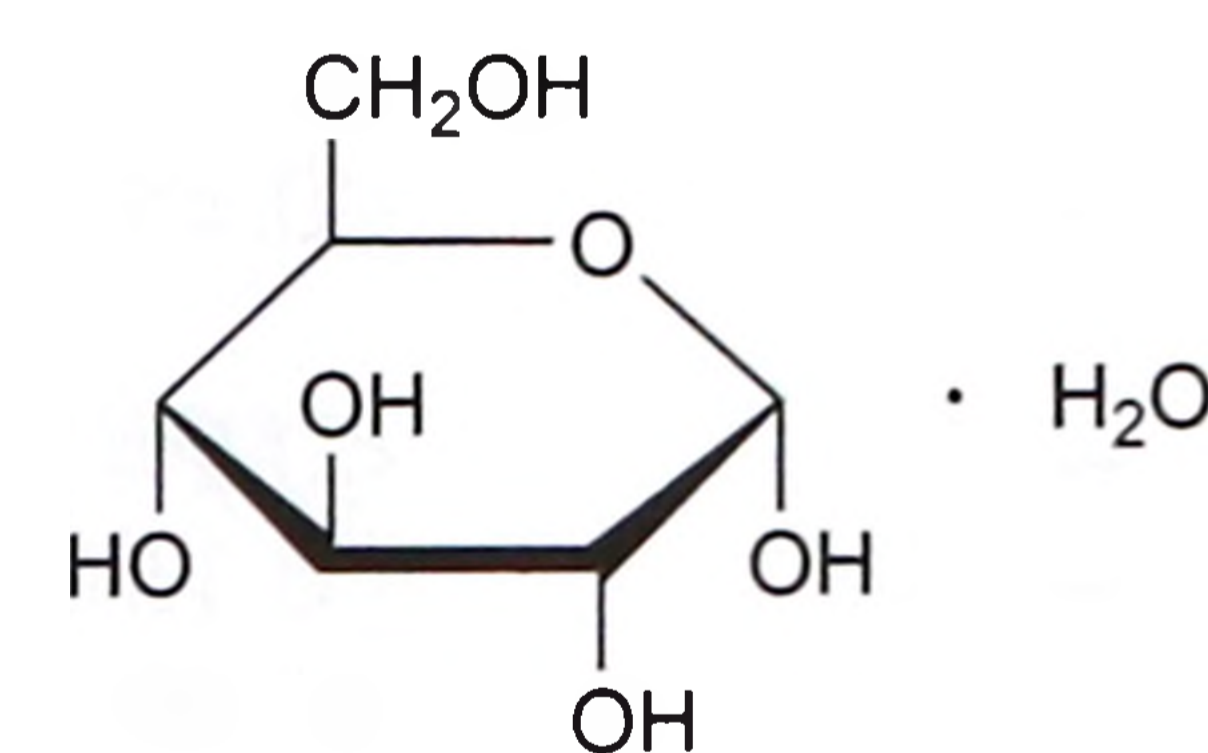
3 Chemical Name and CAS Registry Number

D-(+)-Glucopyranose monohydrate [5996-10-1] and [14431-43-7]

4 Empirical Formula and Molecular Weight

$C_6H_{12}O_6 \cdot H_2O$ 198.17

5 Structural Formula



6 Functional Category

Tablet and capsule binder; tablet and capsule diluent; tonicity agent; sweetening agent.

7 Applications in Pharmaceutical Formulation or Technology

Dextrose is widely used in solutions to adjust tonicity and as a sweetening agent. Dextrose is also used as a wet granulation diluent and binder, and as a direct-compression tablet diluent and binder, primarily in chewable tablets. Although dextrose is comparable as a tablet diluent to lactose, tablets produced with dextrose monohydrate require more lubrication, are less friable, and have a tendency to harden.^(1–3)