

**Dextrose anhydrous**

*Empirical formula* C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

*Molecular weight* 180.16

*CAS number* [50-99-7]

*Synonyms* anhydrous dextrose; anhydrous D-(+)-glucopyranose; anhydrous glucose; dextrosum anhydricum.

*Appearance* White, odorless, crystalline powder with a sweet taste.

*Acidity/alkalinity* pH = 5.9 (10% w/v aqueous solution)

*Density (bulk)* 1.3–1.4 g/cm<sup>3</sup>

*Density (tapped)* 1.1–1.2 g/cm<sup>3</sup>

*Melting point* 146°C

*Moisture content* see Section 10.

*NIR spectra* see Figure 3.

*Osmolarity* A 5.05% w/v aqueous solution is isoosmotic with serum. See also Section 10.

*Refractive index*  $n_D^{20} = 1.3479$  (10% w/v aqueous solution)

*Solubility* see Table III.

**Table III:** Solubility of dextrose anhydrous.

Solvent	Solubility at 20°C unless otherwise stated
Ethanol (95%)	Sparingly soluble
Ether	Sparingly soluble
Methanol	1 in 120
Water	1 in 1.1 at 25°C 1 in 0.8 at 30°C 1 in 0.41 at 50°C 1 in 0.28 at 70°C 1 in 0.18 at 90°C

*Specific gravity* see Table IV.

**Table IV:** Specific gravity of dextrose anhydrous aqueous solutions.

Concentration of aqueous dextrose solution (% w/v)	Specific gravity at 17.5°C
5	1.019
10	1.038
20	1.076
30	1.113
40	1.149

*Specific surface area* 0.22–0.29 m<sup>2</sup>/g

Dextrose anhydrous is listed in the JP XV and PhEur 6.3. Dextrose anhydrous is one of the materials that have been selected for harmonization by the Pharmacopeial Discussion Group. For further information see the General Information Chapter <1196> in the USP32–NF27, the General Chapter 5.8 in PhEur 6.0, along with the ‘State of Work’ document on the PhEur EDQM website, and also the General Information Chapter 8 in the JP XV.