

Product Information

D-(+)-Glucose

Product Number **G 5400**
Store at Room Temperature

Product Description

Molecular Formula: C₆H₁₂O₆
Molecular Weight: 180.2
CAS Number: 50-99-7
Melting Point : 146 °C (α -D-glucose), 150 °C (β -D-glucose)¹
pH: 5.9 (0.5 M aqueous)²

Density of solutions in water at 17.5 °C:²

Concentration (w/v%)	5	10	20	30	40
Density (g/ml)	1.019	1.038	1.076	1.113	1.149

This product has been tested for suitability as a component for culture media (95 mg/ml), using M9 minimal salts medium.

Glucose is a main source of energy for living organisms. Glucose occurs naturally in the free state in fruits and other parts of plants. Glucose is combined into glucosides, disaccharides, oligosaccharides, the polysaccharides (cellulose and starch), and glycogen.

Glucose is a mixture of α - and β -anomers, primarily the α -anomer. The optical rotation of the α -anomer is +112.2° (c = 100 mg/ml, 20 °C) and the β -anomer is +18.7° (c = 100 mg/ml, 20 °C). When D-glucose is dissolved in water, the optical rotation gradually changes (mutarotates) with time and approaches a final equilibrium value of +52.7° (c = 100 mg/ml, 20 °C) due to the formation of an equilibrium mixture consisting of approximately one-third α - and two-thirds β -D-glucose.²

Normal human blood contains 0.08-0.1% glucose.² Small amounts of glucose (also hydrogen peroxide or glucose oxidase) can be measured using luminol as a substrate with horseradish peroxidase.³

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (133 mg/ml), yielding a clear, colorless solution. Other solubility values in water have been reported as 909 mg/ml (25 °C) and 5.55 g/ml (90 °C).²

References

1. Biochemistry, 2nd ed., Lehninger, A. L., ed., Worth Publishers, Inc. (New York, NY: 1975), p. 253.
2. The Merck Index, 13th Ed., Entry# 4472.
3. Puget, K., and Michelson, A. M., Microestimation of glucose and glucose oxidase. *Biochimie*, **58**, 757-758 (1976).
4. Martindale The Extra Pharmacopoeia, 29th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1989), p. 1265.

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