



Product Information

D-(+)-Glucose SigmaUltra

Product Number **G 7528**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{12}O_6$
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

Densities of aqueous solutions (w/v) at 17.5 °C with respect to water:²

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

Trace elemental analyses have been performed on the SigmaUltra glucose. The Certificate of Analysis provides lot specific results. SigmaUltra glucose is for applications which require tight control of elemental content.

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 = 10% in water, 20 °C) and the β -anomer is +18.7° (c = 10% in water, 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 = 10%, 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

One gram of glucose dissolves in 1.1 ml of water at 25 °C and in 0.18 ml of water at 90 °C.²

Storage/Stability

Solutions can be autoclaved.⁴

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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