



Product Information

Glucose-6-phosphate Dehydrogenase from baker's yeast (*S. cerevisiae*)

Product Number **G 4134**
Storage Temperature -0 °C

Product Description

Enzyme Commission (EC) Number: 1.1.1.49
CAS Number: 9001-40-5
Molecular Weight: 128 kDa (gel filtration)¹
Synonym: G-6-P-DH

Glucose 6-phosphate dehydrogenase (G-6-P-DH) is a key regulatory enzyme in the first step of the pentose phosphate pathway. G-6-P-DH oxidizes glucose-6-phosphate in the presence of NADP⁺ to give 6-phosphogluconate. Polyacrylamide gel electrophoresis, activity staining, and anti-yeast G-6-P-DH antibody immunoblotting studies have indicated that G-6-P-DH is a glycoprotein.²

G-6-P-DH has been utilized in assays for nicotinamide adenine dinucleotide⁴ and tissue pyridine nucleotides.⁵ For G-6-P-DH from yeast, the K_m values for glucose 6-phosphate and NADP⁺ are 2.0×10^{-5} M and 2.0×10^{-6} M, respectively, in Tris buffer (pH 8.0) containing 0.01 M MgCl₂ at 38 °C.⁶

This product is a lyophilized powder that is essentially sulfate-free and contains approximately 20% sodium citrate.

Precautions and Disclaimer

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

Preparation Instructions

G-6-P-DH is soluble in water (5 mg/ml), yielding a clear, colorless solution. To ensure maximum stability and recovery of activity, reconstitution with 5 mM citrate, pH 7.5, is recommended. G-6-P-DH can also be dissolved at 1 mg/ml in 5 mM glycine buffer, pH 8, with or without 0.1% BSA. Phosphate buffer will inhibit the enzyme and should not be used.³

Storage/Stability

G-6-P-DH solutions dissolved at 1 mg/ml in 5 mM glycine buffer, pH 8, (with or without 0.1% BSA) or in deionized water at 1 mg/ml can be aliquoted and stored frozen for at least 2 months. However, it is best to subject the aliquots to no more than one freeze/thaw cycle. For long-term refrigerated storage, an ammonium sulfate (3.2 M) suspension of G-6-P-DH is recommended (Product No. G 7877).

References

1. Andrews, P., The Gel-Filtration Behaviour of Proteins Related to their Molecular Weights over a Wide Range. *Biochem. J.*, **96(3)**, 595-606 (1965).
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3. Domagk, G. F., and Chilla, R., Glucose-6-phosphate Dehydrogenase from *Candida utilis*. *Meth. Enzymol.*, **XLI-B**, 205-208 (1975).
4. Bernofsky, C., and Swan, M., An improved cycling assay for nicotinamide adenine dinucleotide. *Anal. Biochem.*, **53(2)**, 452-458 (1973).
5. Nisselbaum, J.S., and Green, S., A simple ultramicro method for determination of pyridine nucleotides in tissues. *Anal. Biochem.*, **27(2)**, 212-217 (1969).
6. Barman, T.E., *Enzyme Handbook*, Vol. I, Springer-Verlag (New York, 1969), pp. 73-74.

GCY/RXR 11/02

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