

## Product Information

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

Catalog Number **G6378**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

CAS RN 9001-40-5  
EC 1.1.1.49  
Synonyms: G-6-P-DH, Zwischenferment

#### Product Description

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  $\text{NADP}^+$  to yield 6-phosphogluconate. For G-6-P-DH from yeast, the  $K_M$  values for glucose-6-phosphate and  $\text{NADP}^+$  are  $2.0 \times 10^{-5}\text{ M}$  and  $2.0 \times 10^{-6}\text{ M}$ , respectively, in Tris buffer, pH 8.0, containing 0.01 M  $\text{MgCl}_2$  at  $38\text{ }^{\circ}\text{C}$ .<sup>1</sup>

G-6-P-DH is a glycoprotein<sup>2</sup> with a molecular mass of 128 kDa (gel filtration).<sup>3</sup>

This product is an essentially sulfate-free lyophilized powder containing ~20% sodium citrate.

Specific activity: 200–400 units/mg protein

Unit definition: One unit will oxidize 1.0  $\mu\text{mole}$  of D-glucose 6-phosphate to 6-phospho-D-gluconate per minute in the presence of  $\text{NADP}$  at pH 7.4 at  $25\text{ }^{\circ}\text{C}$ .

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### 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 sodium citrate, pH 7.4, is recommended. Phosphate buffer will inhibit the enzyme and should not be used.<sup>4</sup>

#### Storage/Stability

Store the product at  $-20\text{ }^{\circ}\text{C}$ . It remains active for at least 2 years at  $25\text{ }^{\circ}\text{C}$ .

G-6-P-DH solutions dissolved 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.

#### References

1. Barman, T.E., Enzyme Handbook, Vol. I, Springer-Verlag (New York, NY: 1969), pp. 73-74.
2. Reilly, K.E., and Allred, J.B., Glucose-6-phosphate Dehydrogenase from *Saccharomyces cerevisiae* is a Glycoprotein. Biochem. Biophys. Res. Commun., **216(3)**, 993-998 (1995).
3. Andrews, P., The Gel-Filtration Behaviour of Proteins Related to their Molecular Weights over a Wide Range. Biochem. J., **96(3)**, 595-606 (1965).
4. Domagk, G.F., and Chilla, R., Glucose-6-phosphate Dehydrogenase from *Candida utilis*. Methods in Enzymology, **XLI-B**, 205-208 (1975).

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