Product Information

Inorganic Pyrophosphatase from *Escherichia coli*

≥100 units/mL, aqueous solution

SAE0215

Product Description

Inorganic pyrophosphatase (PPase) is a ubiquitous enzyme that catalyzes pyrophosphate hydrolysis. It plays an important role in energy metabolism by providing a thermodynamic pull for biosynthetic reactions, such as protein, RNA, and DNA synthesis. Nucleic acid synthesis would be energetically impossible *in vivo* if not coupled with the hydrolysis of pyrophosphate (PPi). [1-2]

This product is based on the native pyrophosphatase from *E. coli*, Uniprot No. P0A7A9. Pyrophosphatase in *E. coli* is a homohexameric protein containing 175 amino acids residues per subunit.[3] This product is a recombinant protein expressed in *E. coli* and induced by IPTG. Each subunit has a MW of 19.7 kDa and theoretical pI of ~5. The protein activity is Mg^{2+} dependent and it is a relatively thermostable protein.[4]

The product is supplied as an aqueous solution containing 20mM Tris-HCl, 100mM NaCl, 1mM DTT, 0.1mM EDTA, and 50% glycerol, titrated to pH 8 at 25 °C.

Purity: minimum >=95% (SEC-HPLC).

Activity: minimum 100 units per mL.

Unit definition: One unit will release 1.0 µmole of inorganic orthophosphate per minute at pH 9 at 25 °C. The reaction buffer used for determination of enzyme activity contains 50 mM Tris-HCl, pH 9.0.

Precautions and Disclaimer

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

Storage/Stability

Store this product at –20 °C (range of –25 °C to –10 °C). The product retains activity for at least 2 years when stored at –20 °C.

References

1. Lahti, R., Microbial inorganic pyrophosphatases. Microbiol. Rev., **47**, 169-178 (1983).
2. Cooperman, B.S., et al., Evolutionary conservation of the active site of soluble inorganic pyrophosphatase. Trends Biochem. Sci., **17**, 262-266 (1992).
3. Lahti, R., et al., Cloning and characterization of the gene encoding inorganic pyrophosphatase of *Escherichia coli* K-12. J. Bacteriol., **170**, 5001-5907 (1988).
4. Baykov, A.A., et al., Catalysis by *Escherichia coli* Inorganic phosphatase: pH and Mg^{2+} dependence. Biochemistry, **35**, 4655-4661 (1996).

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