



Product Information

Pyrophosphatase, Inorganic
from *Escherichia coli*, recombinant
expressed in *E. coli*

Product Number **I 5907**
Storage Temperature -20°C

EC 3.6.1.1
Synonym: PPase

Product Description

Inorganic pyrophosphatase (PPase) is a ubiquitous enzyme catalyzing pyrophosphate hydrolysis. It plays an important role in energy metabolism 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} PPase is a constitutively expressed enzyme essential for both bacteria and yeast and therefore, can be used for detection and enumeration of bacteria and yeast cells.³

PPase from *E. coli* is a homohexameric protein containing 175 amino acid residues per subunit.⁴ It is a relatively thermo-stable protein⁵ and its activity is Mg^{2+} dependent.

This product is supplied as a lyophilized powder in Tris buffered salts containing protease inhibitors

Purity: minimum 90% (SDS-PAGE)

Activity: minimum 800 units per mg protein

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 laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the lyophilized enzyme in 2 ml of deionized water to obtain a 0.5 mg/ml solution in 12.5 mM Tris buffer and protease inhibitors.

Storage/Stability

It is recommended to store the lyophilized powder at -20°C and, as supplied, the product is stable for at least 2 years. After reconstitution, store 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. Nyren, P., and Edwin, V., Inorganic pyrophosphatase based detection systems. *Anal. Biochem.*, **200**, 39-45 (1994).
4. Lahti, R., et al., Cloning and characterization of the gene encoding inorganic pyrophosphatase of *Escherichia coli* K-12. *J. Bacteriol.*, **170**, 5001-5907 (1988).
5. 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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