

# User Manual

Version 2.0

**Product name:** Inorganic Pyrophosphatase, yeast

**Cat #:** PI-100, PI-200, PI-OEM

## Description:

The Pyrophosphatase, Inorganic (PPase) catalyzes the hydrolysis of inorganic pyrophosphate to two orthophosphates. The enzyme requires a divalent metal cation, with  $Mg^{2+}$  conferring the highest activity.

## Application:

- High yield synthesis of RNA by in vitro transcription<sup>(1,2)</sup>
- DNA polymerization reactions: preventing accumulation of pyrophosphate<sup>(3, 4)</sup>
- Removal of contaminant PPI in reagents used for SNP genotyping by methods based on the detection of pyrophosphate<sup>(5)</sup>

**Source:** *E. coli* cells with a cloned ppa gene from *Sacharomyces cerevisiae*.

## Unit Definition:

One unit is the amount of enzyme that will generate 1  $\mu$ mol of phosphate per minute from inorganic pyrophosphate under standard reaction conditions (a 10 minute reaction at 25°C in 100 mM Tris-HCl, pH 7.2, 2 mM  $MgCl_2$  and 2 mM PPI in a reaction volume of 0.5 ml).

## Storage Conditions:

20 mM Tris-HCl  
100 mM KCl  
1 mM Dithiothreitol  
0.1 mM EDTA  
50% Glycerol  
pH 8.0 @ 25°C

**Recommended Storage Condition:** -20°C

## References:

1. Cooperman, B.S., The mechanism of action of yeast inorganic pyrophosphatase, *Meth. Enzymol.*, 87, 526-548, 1982.
2. Cunningham, P.R. and Ofengand, J., Use of inorganic pyrophosphatase to improve the yield of in vitro transcription reactions catalyzed by T7 RNA polymerase, *Biotechniques*, 9, 713-714, 1990.
3. Tabor, S., Richardson, C.C., DNA sequence analysis with a modified bacteriophage T7 DNA polymerase. Effect of pyrophosphorolysis and metal ions, *J. Biol. Chem.*, 265, 8322-8328, 1990.
4. Dean, B.F., et al., Rapid amplification of plasmid and phage DNA using phi29 DNA polymerase and multiply primed Rolling Circle amplification, *Genome Res.*, 11, 1095-1099, 2001.
5. Zhou, G.H., et al., Quantitative detection of single nucleotide polymorphisms for a pooled sample by a bioluminometric assay coupled with modified primer extension reactions (BAMPER), *Nucleic Acids Res.*, 29, E93, 2001.