

## Pyrophosphatase, Inorganic (*E. coli*) (GMP-grade)

### Introductions

Inorganic pyrophosphatase (PPase) is a ubiquitous enzyme that catalyzes the hydrolysis of inorganic pyrophosphate to orthophosphate. This product is a yeast-derived inorganic pyrophosphatase expressed by recombinant *Escherichia coli*, which can catalyze the hydrolysis of one molecule of inorganic pyrophosphate into two molecules of orthophosphate. It can be used in molecular biology to increase the yield of mRNA in *in vitro* transcription reactions. The production process of this product strictly controls host protein residues, nucleic acid residues, etc., and complies with GMP production and quality management practices.

PPase reaction principle:  $\text{P}_2\text{O}_7^{4-} + \text{H}_2\text{O} \rightarrow 2\text{HPO}_4^{2-}$

### Composition and storage conditions

Size	2 KU	20 KU	Storage
Components			
Pyrophosphatase, Inorganic ( <i>E. coli</i> ) (2 KU/mL)	1 mL	10 mL	-70°C or below
Shipping: Dry Ice		Shelf life: 2 years	

### Quality Control

Parameter	Standard
Appearance	Clear and transparent solution
pH	7.5-8.5
Purity	≥ 95%
Activity	1.6-2.4 KU/mL
Concentration	2.0±0.4 mg/mL
Endonuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
Exonuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
RNase Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%

Non-specific nuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
Bacterial Endotoxins	≤ 200 EU/mg
Host Protein Residues	≤ 100 ppm
Host DNA Residues	≤ 5 ng/mg

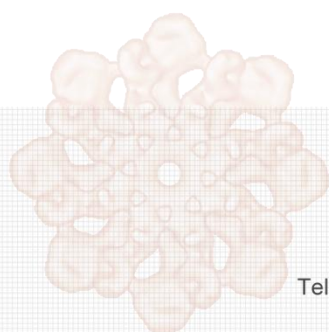
## Usage

Use 1–3 units of enzyme per mL in vitro RNA synthesis reaction.

## Product description

1. **Enzyme activation unit (U) definition:** 1 U is the amount of enzyme that will generate 1 μmol of phosphate per minute from inorganic pyrophosphate under standard reaction conditions (a 10-minute reaction at 25°C in 20 mM Tris-HCl, pH 8.0, 2 mM MgCl<sub>2</sub> and 2 mM PPi).

2. **Stored solution composition:** 20 mM Tris-HCl, 100 mM NaCl, 1 mM Dithiothreitol, 0.1 mM EDTA, 50% Glycerol, pH 8.0



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