

Pyrophosphatase, Inorganic (*E. coli*)



1-800-632-7799
info@neb.com
www.neb.com



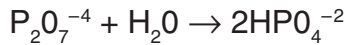
M0361S 002121114111

M0361S



10 units **100 U/ml** **Lot: 0021211**
RECOMBINANT **Store at -20°C** **Exp: 11/14**

Description: Inorganic pyrophosphatase (PPase) catalyzes the hydrolysis of inorganic pyrophosphate to form orthophosphate.



Source: PPase is prepared from an *E. coli* strain containing a clone of the *E. coli* inorganic pyrophosphatase gene.

Applications:

- Increasing RNA yield in transcription reaction; enhancing DNA replication.

Supplied in: 20 mM Tris-HCl, 100 mM NaCl, 1 mM Dithiothreitol, 0.1 mM EDTA, 50% Glycerol, pH 8.0 @ 25°C. Store at -20°C.

Unit Definition: One unit 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 MgCl₂ and 2 mM PPI).

Quality Assurance: This enzyme is validated in an *in vitro* RNA synthesis reaction.

Pyrophosphatase, Inorganic (*E. coli*)



1-800-632-7799
info@neb.com
www.neb.com



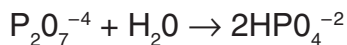
M0361S 002121114111

M0361S



10 units **100 U/ml** **Lot: 0021211**
RECOMBINANT **Store at -20°C** **Exp: 11/14**

Description: Inorganic pyrophosphatase (PPase) catalyzes the hydrolysis of inorganic pyrophosphate to form orthophosphate.



Source: PPase is prepared from an *E. coli* strain containing a clone of the *E. coli* inorganic pyrophosphatase gene.

Applications:

- Increasing RNA yield in transcription reaction; enhancing DNA replication.

Supplied in: 20 mM Tris-HCl, 100 mM NaCl, 1 mM Dithiothreitol, 0.1 mM EDTA, 50% Glycerol, pH 8.0 @ 25°C. Store at -20°C.

Unit Definition: One unit 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 MgCl₂ and 2 mM PPI).

Quality Assurance: This enzyme is validated in an *in vitro* RNA synthesis reaction.

Quality Control Assays

RNase Assay: Incubation of a 10 μl reaction containing 0.1 unit of the enzyme with 40 ng of 300 base RNA transcript for 16 hours at 37°C resulted in no detectable degradation of RNA as determined by denaturing PAGE analysis.

Exonuclease Assay: Incubation of a 50 μl reaction containing 1 unit of the enzyme with 1 μg of a mixture of single and double-stranded [³H] *E. coli* DNA for 4 hours at 37°C released < 0.5% of the total radioactivity.

Endonuclease Activity: Incubation of a 10 μl reaction containing 0.1 unit of the enzyme with 300 ng of supercoiled plasmid for 16 hours at 37°C produced less than 10% nicked or linear molecules as determined by agarose gel electrophoresis.

Alkaline Phosphatase Activity: This colorimetric assay tests for the presence of alkaline phosphatase which removes 5' phosphates from DNA, RNA, rNTPs and dNTPs. One unit of alkaline phosphatase is defined as the amount of enzyme that hydrolyzes 1 μmole of p-nitrophenylphosphate in 1 minute. When 2 units of the enzyme are incubated under standard alkaline phosphatase assay conditions (1 ml reaction containing 1 M diethanolamine-HCl (pH 9.8), 0.5 mM MgCl₂ and 10 mM p-nitrophenylphosphate at 37°C for 1 hour), < 0.0001 unit of alkaline phosphatase activity is detected.

Usage Note: Use 1–3 units per ml high yield *in vitro* RNA synthesis reaction.

Heat Inactivation: No

Covered under U.S. Patent No. 5,861,296.

CERTIFICATE OF ANALYSIS

Quality Control Assays

RNase Assay: Incubation of a 10 μl reaction containing 0.1 unit of the enzyme with 40 ng of 300 base RNA transcript for 16 hours at 37°C resulted in no detectable degradation of RNA as determined by denaturing PAGE analysis.

Exonuclease Assay: Incubation of a 50 μl reaction containing 1 unit of the enzyme with 1 μg of a mixture of single and double-stranded [³H] *E. coli* DNA for 4 hours at 37°C released < 0.5% of the total radioactivity.

Endonuclease Activity: Incubation of a 10 μl reaction containing 0.1 unit of the enzyme with 300 ng of supercoiled plasmid for 16 hours at 37°C produced less than 10% nicked or linear molecules as determined by agarose gel electrophoresis.

Alkaline Phosphatase Activity: This colorimetric assay tests for the presence of alkaline phosphatase which removes 5' phosphates from DNA, RNA, rNTPs and dNTPs. One unit of alkaline phosphatase is defined as the amount of enzyme that hydrolyzes 1 μmole of p-nitrophenylphosphate in 1 minute. When 2 units of the enzyme are incubated under standard alkaline phosphatase assay conditions (1 ml reaction containing 1 M diethanolamine-HCl (pH 9.8), 0.5 mM MgCl₂ and 10 mM p-nitrophenylphosphate at 37°C for 1 hour), < 0.0001 unit of alkaline phosphatase activity is detected.

Usage Note: Use 1–3 units per ml high yield *in vitro* RNA synthesis reaction.

Heat Inactivation: No

Covered under U.S. Patent No. 5,861,296.

CERTIFICATE OF ANALYSIS