240 County Road Ipswich, MA 01938-2723 Tel 978-927-5054 Fax 978-921-1350 www.neb.com info@neb.com

## New England Biolabs Product Specification

Product Name: Deoxynucleotide (dNTP) Solution Set

Catalog #: N0446S
Concentration: 100 mM
Unit Definition: N/A
Shelf Life: 24 months
Storage Temp: -20°C

Storage Conditions: Supplied in Ultrapure water as a sodium salt (pH 7.5)

Specification Version: PS-N0446S v1.0 Effective Date: 13 Aug 2015

## Assay Name/Specification (minimum release criteria)

Endonuclease Activity (Nicking) - A 50  $\mu$ l reaction in NEBuffer 2 containing 1  $\mu$ g of supercoiled PhiX174 DNA and a minimum of 1  $\mu$ l of dATP, dCTP, dGTP, and dTTP incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.

Non-Specific DNase Activity (16 Hour) - A 50  $\mu$ l reaction in NEBuffer 2 containing 1  $\mu$ g of T3 DNA in addition to a reaction containing Lambda-HindIII DNA and a minimum of 10  $\mu$ l of dATP, dCTP, dGTP, and dTTP incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

PCR Amplification (0.5 kb Lambda, dNTPs) - A 50  $\mu$ l reaction in ThermoPol® Reaction Buffer in the presence of 200  $\mu$ M dATP, dCTP, dGTP, and dTTP and 0.5  $\mu$ M primers containing 1 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 0.5 kb product.

PCR Amplification (2.0 kb Lambda, dNTPs) - A 50  $\mu$ l reaction in ThermoPol® Reaction Buffer in the presence of 200  $\mu$ M dATP, dCTP, dGTP, and dTTP and 0.5  $\mu$ M primers containing 1 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 2.0 kb product.

PCR Amplification (5.0 kb Lambda, dNTPs) - A 50  $\mu$ l reaction in ThermoPol® Reaction Buffer in the presence of 200  $\mu$ M dATP, dCTP, dGTP, and dTTP and 0.5  $\mu$ M primers containing 1 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 5.0 kb product.

Phosphatase Activity (pNPP) - A 200  $\mu$ l reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl<sub>2</sub> containing 2.5 mM p-Nitrophenol Phosphate (pNPP) and a minimum of 4  $\mu$ l dATP, dCTP, dGTP, and dTTP incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.

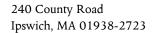
Physical Purity (HPLC) - dATP, dCTP, dGTP, and dTTP is ≥ 99% pure as determined by HPLC analysis.

RNase Activity (Extended Digestion) - A 10  $\mu$ l reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1  $\mu$ l dATP, dCTP, dGTP, and dTTP is incubated at 37°C. After incubation for 16 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.







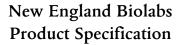


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Date

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Derek Robinson Director of Quality Control

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