Product Name: Deep Vent® DNA Polymerase  
Catalog #: M0258S/L  
Concentration: 2,000 units/ml  
Unit Definition: One unit is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid insoluble material in 30 minutes at 75°C.  
Shelf Life: 24 months  
Storage Temp: -20°C  
Storage Conditions: 10 mM Tris-HCl, 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.1% Triton® X-100, 50% Glycerol, (pH 7.4 @ 25°C)  
Specification Version: PS-M0258S/L v1.0  
Effective Date: 02 Dec 2015  

Assay Name/Specification (minimum release criteria)  

**Endonuclease Activity (Nicking, Polymerase, dNTP)** - A 50 µl reaction in ThermoPol® Reaction Buffer in the presence of 400 µM dNTPs containing 1 µg of supercoiled PhiX174 DNA and a minimum of 20 units of Deep Vent™ DNA Polymerase incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.  

**PCR Amplification (2.0 kb Lambda DNA)** - A 25 µl reaction in ThermoPol® Reaction Buffer in the presence of 200 µM dNTPs and 0.2 µM primers containing 5 ng Lambda DNA with 0.5 units of Deep Vent™ DNA Polymerase for 30 cycles of PCR amplification results in the expected 2.0 kb product.  

**Phosphatase Activity (pNPP)** - A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl₂ containing 2.5 nM p-Nitrophenyl Phosphate (pNPP) and a minimum of 100 units Deep Vent™ DNA Polymerase incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.  

**Protein Purity Assay (SDS-PAGE)** - Deep Vent™ DNA Polymerase is ≥ 98% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.  

**qPCR DNA Contamination (E. coli Genomic)** - A minimum of 2 units of Deep Vent™ DNA Polymerase is screened for the presence of *E. coli* genomic DNA using SYBR® Green qPCR with primers specific for the *E. coli* 16S rRNA locus. Results are quantified using a standard curve generated from purified *E. coli* genomic DNA. The measured level of *E. coli* genomic DNA contamination is ≤ 1 *E. coli* genome.
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<tr>
<th>Assay Name/Specification (minimum release criteria)</th>
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<td><strong>RNase Activity (Extended Digestion)</strong> - A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 µl of Deep Vent™ DNA Polymerase is incubated at 37ºC. After incubation for 16 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</td>
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