

## New England Biolabs Certificate of Analysis


**Product Name:** ThermoPol® Reaction Buffer Pack  
**Catalog Number:** B9004S  
**Concentration:** 10 X Concentrate  
**Lot Number:** 10044651  
**Expiration Date:** 08/2023  
**Storage Temperature:** -20°C  
**Specification Version:** PS-B9004S v1.0  
**Composition (1X):** 20 mM Tris-HCl, 10 mM (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 10 mM KCl, 2 mM MgSO<sub>4</sub>, 0.1 % Triton®X-100, (pH 8.8 @ 25°C)

ThermoPol® Reaction Buffer Pack Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
B9004SVIAL	ThermoPol® Reaction Buffer Pack	10041932	Pass
B1003SVIAL	Magnesium Sulfate (MgSO <sub>4</sub> ) Solution	10042724	Pass

Assay Name/Specification	Lot # 10044651
<b>RNase Activity (Extended Digestion)</b> A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 µl of ThermoPol® Reaction Buffer is incubated at 37°C. After incubation for 4 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.	Pass
<b>Endonuclease Activity (Nicking, Buffer)</b> A 50 µl reaction in 2X ThermoPol® Reaction Buffer containing 1 µg of supercoiled PhiX174 DNA incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	Pass
<b>Non-Specific DNase Activity (16 hour, Buffer)</b> A 50 µl reaction in 2X ThermoPol® Reaction Buffer containing 1 µg of T3 DNA in addition to a reaction containing Lambda-HindIII DNA incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	Pass
<b>PCR Amplification (5 kb Lambda DNA, Buffer)</b> A 50 µl reaction in ThermoPol® Reaction Buffer in the presence of 200 µM dNTPs and 0.2 µM primers containing 5 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 5 kb product.	Pass

Assay Name/Specification	Lot # 10044651
<p><b>pH (buffers/solutions)</b> The pH of 10X ThermoPol<sup>®</sup> Reaction Buffer is between pH 8.7 and 8.9 at 25°C.</p>	<b>Pass</b>
<p><b>Phosphatase Activity (pNPP, Buffer)</b> A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl<sub>2</sub> containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 40 µl ThermoPol<sup>®</sup> Reaction Buffer incubated for 4 hours at 37°C yields &lt;0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.</p>	<b>Pass</b>
<p><b>qPCR DNA Contamination (E. coli Genomic, Buffer)</b> A minimum of 1 µl of ThermoPol<sup>®</sup> Reaction Buffer is screened for the presence of E. coli genomic DNA using SYBR<sup>®</sup> 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.</p>	<b>Pass</b>

This product has been tested and shown to be in compliance with all specifications.




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Loren Duquette  
Production Scientist  
18 Apr 2019




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Jay Minichiello  
Packaging Quality Control Inspector  
18 Jun 2019