

## New England Biolabs Certificate of Analysis

**Product Name:** Taq DNA Polymerase with Standard Taq (Mg-free) Buffer  
**Catalog Number:** M0320L  
**Concentration:** 5,000 U/ml  
**Unit Definition:** One unit is defined as the amount of enzyme that will incorporate 15 nmol of dNTP into acid-insoluble material in 30 minutes at 75°C.  
**Packaging Lot Number:** 10122835  
**Expiration Date:** 07/2023  
**Storage Temperature:** -20°C  
**Storage Conditions:** 10 mM Tris-HCl, 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.5 % Tween® 20, 0.5 % IGEPAL® CA-630, 50 % Glycerol, (pH 7.4 @ 25°C)  
**Specification Version:** PS-M0320S/L v2.0

Taq DNA Polymerase with Standard Taq (Mg-free) Buffer Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
M0320LVIAL	Taq DNA Polymerase with Standard Taq (Mg-free) Buffer	10119805	Pass
B9021SVIAL	Magnesium Chloride (MgCl <sub>2</sub> ) Solution	10114953	Pass
B9015SVIAL	Standard Taq (Mg-free) Reaction Buffer Pack	10122836	Pass

Assay Name/Specification	Lot # 10122835
<p><b>Non-Specific DNase Activity (16 Hour)</b>            A 50 µl reaction in NEBuffer 2 containing 1 µg of T3 or T7 DNA in addition to a reaction containing Lambda-HindIII DNA and a minimum of 5 units of Taq DNA Polymerase incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.</p>	Pass
<p><b>Single Stranded DNase Activity (FAM-Labeled Oligo)</b>            A 50 µl reaction in ThermoPol® Reaction Buffer containing a 10 nM solution of a fluorescent internal labeled oligonucleotide and a minimum of 25 units of Taq DNA Polymerase incubated for 30 minutes at 37°C and 75°C yields &lt;10% degradation as determined by capillary electrophoresis.</p>	Pass
<p><b>Endonuclease Activity (Nicking)</b>            A 50 µl reaction in ThermoPol® Reaction Buffer containing 1 µg of supercoiled PhiX174 DNA and a minimum of 20 units of Taq DNA Polymerase incubated for 4 hours at 37°C and 75°C results in &lt;10% conversion to the nicked form as determined by agarose gel electrophoresis.</p>	Pass

Assay Name/Specification	Lot # 10122835
<p><b>qPCR DNA Contamination (E. coli Genomic)</b> A minimum of 5 units of Taq 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 <math>\leq 1</math> E. coli genome.</p>	<b>Pass</b>
<p><b>RNase Activity (Extended Digestion)</b> A 10 <math>\mu</math>l reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 <math>\mu</math>l of Taq DNA Polymerase is incubated at 37°C. After incubation for 16 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</p>	<b>Pass</b>
<p><b>Phosphatase Activity (pNPP)</b> A 200 <math>\mu</math>l reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl<sub>2</sub> containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 100 units Taq DNA Polymerase 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>Protein Purity Assay (SDS-PAGE)</b> Taq DNA Polymerase is <math>\geq 99\%</math> pure as determined by SDS-PAGE analysis using Coomassie Blue detection.</p>	<b>Pass</b>
<p><b>PCR Amplification (5.0 kb Lambda DNA)</b> A 50 <math>\mu</math>l reaction in Standard Taq (Mg-free) Reaction Buffer plus 1.5 mM MgCl<sub>2</sub> in the presence of 200 <math>\mu</math>M dNTPs and 0.2 <math>\mu</math>M primers containing 5 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 5.0 kb product.</p>	<b>Pass</b>

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

One or more products referenced in this document may be covered by a 3rd-party trademark. Please visit [www.neb.com/trademarks](http://www.neb.com/trademarks) for additional information.

*Christie Vazquez*

Christie Vazquez  
Production Scientist  
02 Nov 2021

*Michael Tonello*

Michael Tonello  
Packaging Quality Control Inspector  
02 Nov 2021