

## New England Biolabs Certificate of Analysis

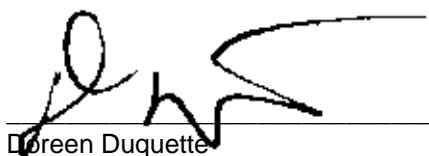
**Product Name:** Q5<sup>®</sup> High-Fidelity 2X Master Mix  
**Catalog Number:** M0492S  
**Concentration:** 2 X Concentrate  
**Lot Number:** 10044914  
**Expiration Date:** 02/2021  
**Storage Temperature:** -20°C  
**Specification Version:** PS-M0492S/L v1.0  
**Composition (1X):** Proprietary

Q5 <sup>®</sup> High-Fidelity 2X Master Mix Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
M0492SVIAL	Q5 <sup>®</sup> High-Fidelity 2X Master Mix	10040161	Pass

Assay Name/Specification	Lot # 10044914
<b>Endonuclease Activity (Nicking, Polymerase, dNTP)</b> A 50 µl reaction in NEBuffer 2 in the presence of 400 µM dNTPs containing 1 µg of supercoiled pUC19 DNA and a minimum of 10 units of Q5 <sup>®</sup> High-Fidelity DNA Polymerase incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	<b>Pass</b>
<b>Non-Specific DNase Activity (16 hour, Buffer)</b> A 50 µl reaction in 1X Q5 <sup>®</sup> High-Fidelity Master Mix 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.	<b>Pass</b>
<b>PCR Amplification (20 kb Lambda DNA, Master Mix)</b> A 50 µl reaction in 1X Q5 <sup>®</sup> High-Fidelity Master Mix and 1.0 µM primers containing 10 ng Lambda DNA for 22 cycles of PCR amplification results in the expected 20 kb product.	<b>Pass</b>
<b>PCR Amplification (7 kb Human Genomic DNA, Master Mix)</b> A 50 µl reaction in 1X Q5 <sup>®</sup> High-Fidelity Master Mix and 0.5 µM primers containing 20 ng Human Genomic DNA for 30 cycles of PCR amplification results in the expected 7 kb product.	<b>Pass</b>
<b>Phosphatase Activity (pNPP)</b>	<b>Pass</b>

Assay Name/Specification	Lot # 10044914
<p>A 200 µl 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 of Q5<sup>®</sup> High-Fidelity DNA Polymerase incubated for 4 hours at 37°C yields &lt;0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.</p>	
<p><b>Protein Purity Assay (SDS-PAGE)</b> Q5<sup>®</sup> High-Fidelity DNA Polymerase is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.</p>	<b>Pass</b>
<p><b>qPCR DNA Contamination (E. coli Genomic)</b> A minimum of 2 units of Q5<sup>®</sup> High-Fidelity DNA Polymerase 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>
<p><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 Q5<sup>®</sup> High-Fidelity 2X Master Mix is incubated at 37°C. After incubation for 4 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</p>	<b>Pass</b>

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



Doreen Duquette  
Production Scientist  
15 Apr 2019



Mary Conlon  
Packaging Quality Control Inspector  
13 May 2019