

New England Biolabs Certificate of Analysis

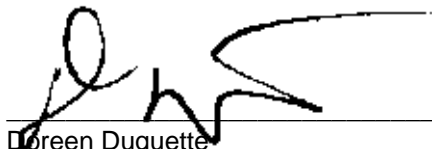
Product Name: Q5[®] Hot Start High-Fidelity 2X Master Mix
Catalog Number: M0494S
Concentration: 2 X Concentrate
Lot Number: 10038469
Expiration Date: 10/2020
Storage Temperature: -20°C
Specification Version: PS-M0494S/L v1.0
Composition (1X): Proprietary

Q5 [®] Hot Start High-Fidelity 2X Master Mix Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
M0494SVIAL	Q5 [®] Hot Start High-Fidelity 2X Master Mix	10032984	Pass

Assay Name/Specification	Lot # 10038469
PCR Amplification (20 kb Lambda DNA, Master Mix) A 50 µl reaction in 1X Q5 [®] Hot Start 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.	Pass
Non-Specific DNase Activity (16 hour, Buffer) A 50 µl reaction in 1X Q5 [®] Hot Start 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.	Pass
Endonuclease Activity (Nicking, Polymerase, dNTP) 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 [®] 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.	Pass
RNase Activity (Extended Digestion) 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 [®] Hot Start High-Fidelity 2X Master Mix 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

Assay Name/Specification	Lot # 10038469
<p>qPCR DNA Contamination (E. coli Genomic) A minimum of 2 units of Q5® High-Fidelity 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.</p>	Pass
<p>Protein Purity Assay (SDS-PAGE) Q5® High-Fidelity DNA Polymerase is $\geq 95\%$ pure as determined by SDS-PAGE analysis using Coomassie Blue detection.</p>	Pass
<p>Phosphatase Activity (pNPP) A 200 μl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl₂ containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 100 units of Q5® High-Fidelity DNA Polymerase incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.</p>	Pass
<p>PCR Amplification (Hot Start, Human Genomic DNA, Master Mix) A 25 μl reaction in 1X Q5® Hot Start High-Fidelity Master Mix and 0.5 μM primers containing 50 ng Human Genomic DNA for 25 cycles of PCR amplification results in the expected 665 bp product and a decrease in non-specific genomic bands after pre-incubation at room temperature for 1 hour, when compared to a non-hot start control reaction.</p>	Pass
<p>PCR Amplification (7 kb Human Genomic DNA, Master Mix) A 50 μl reaction in 1X Q5® Hot Start 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.</p>	Pass

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



Green Duquette
Production Scientist
30 Jan 2019



Michael Tonello
Packaging Quality Control Inspector
18 Mar 2019