

New England Biolabs Certificate of Analysis

Product Name: Q5[®] High-Fidelity 2X Master Mix
Catalog #: M0492S/L
Concentration: 2X
Lot #: 0151612
Assay Date: 12/2016
Expiration Date: 12/2018
Storage Temp: -20°C
Composition (1X): Proprietary
Specification Version: PS-M0492S/L v1.0
Effective Date: 23 Feb 2017

| Assay Name/Specification (minimum release criteria) | Lot #0151612 |
|--|--------------|
| 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 |
| Non-Specific DNase Activity (16 hour, Buffer) - A 50 µl reaction in 1X Q5 [®] 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 |
| PCR Amplification (20 kb Lambda DNA, Master Mix) - A 50 µl reaction in 1X Q5 [®] 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 |
| PCR Amplification (7 kb Human Genomic DNA, Master Mix) - A 50 µl reaction in 1X Q5 [®] 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. | Pass |
| Phosphatase Activity (pNPP) - A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl ₂ containing 2.5 mM <i>p</i> -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. | Pass |



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| <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>qPCR DNA Contamination (<i>E. coli</i> Genomic) - A minimum of 2 units of Q5[®] High-Fidelity DNA Polymerase is screened for the presence of <i>E. coli</i> genomic DNA using SYBR[®] Green qPCR with primers specific for the <i>E. coli</i> 16S rRNA locus. Results are quantified using a standard curve generated from purified <i>E. coli</i> genomic DNA. The measured level of <i>E. coli</i> genomic DNA contamination is ≤ 1 <i>E. coli</i> genome.</p> | Pass |
| <p>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[®] 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.</p> | Pass |



Authorized by
Karen Moreira
23 Feb 2017



Inspected by
Lynne Apone
01 Dec 2016

