

New England Biolabs Certificate of Analysis

Product Name: Q5U™ Hot Start High-Fidelity DNA Polymerase
Catalog Number: M0515S
Concentration: 2,000 U/ml
Unit Definition: One unit is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid insoluble material in 30 minutes at 74°C.
Lot Number: 10048784
Expiration Date: 05/2021
Storage Temperature: -20°C
Storage Conditions: Proprietary
Specification Version: PS-M0515S/L v1.0

Q5U™ Hot Start High-Fidelity DNA Polymerase Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
M0515SVIAL	Q5U™ Hot Start High-Fidelity DNA Polymerase	10045319	Pass
B9037SVIAL	Q5U™ Reaction Buffer	10045318	Pass

Assay Name/Specification	Lot # 10048784
<p>Endonuclease Activity (Hot Start, Nicking) 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 Q5U™ 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.</p>	Pass
<p>PCR Amplification (20 kb Lambda DNA) A 50 µl reaction in Q5U™ Reaction Buffer in the presence of 200 µM dNTPs and 1.0 µM primers containing 10 ng Lambda DNA with 1 unit of Q5U™ Hot Start High-Fidelity DNA Polymerase for 22 cycles of PCR amplification results in the expected 20 kb product.</p>	Pass
<p>PCR Amplification (7 kb Human Genomic DNA) A 50 µl reaction in Q5U™ Reaction Buffer in the presence of 200 µM dNTPs and 0.5 µM primers containing 20 ng Human Genomic DNA with 1 unit of Q5U™ Hot Start High-Fidelity DNA Polymerase for 30 cycles of PCR amplification results in the expected 7 kb product.</p>	Pass

Assay Name/Specification	Lot # 10048784
<p>PCR Amplification (Bisulfite Converted DNA) A 25 µl reaction in Q5U™ Reaction Buffer in the presence of 200 µM dNTPs and 0.5 µM primers containing 10 ng bisulfite-converted human genomic DNA with 0.5 units of Q5U™ Hot Start High-Fidelity DNA Polymerase for 35 cycles of PCR amplification results in the expected 534 bp product.</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 Q5U™ 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>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 Q5U™ Hot Start High-Fidelity DNA Polymerase is incubated at 37°C. After incubation for 16 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</p>	Pass
<p>qPCR DNA Contamination (E. coli Genomic) A minimum of 2 units of Q5U™ Hot Start 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) Q5U™ High-Fidelity DNA Polymerase is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.</p>	Pass

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



Christie Vazquez
Production Scientist
22 May 2019



Michael Tonello
Packaging Quality Control Inspector
26 Jun 2019