NEW ENGLAND BioLabs Inc.
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New England Biolabs
Certificate of Analysis

Product Name:	*Q5® Reaction Buffer Pack*
Catalog Number:	*B9027S*
Concentration:	*5 X Concentrate*
Lot Number:	*10035289*
Expiration Date:	*10/2021*
Storage Temperature:	*-20°C*
Specification Version:	*PS-B9027S v1.0*
Composition (1X):	*Proprietary*

Q5® Reaction Buffer Pack Component List			
NEB Part Number	**Component Description**	**Lot Number**	**Individual QC Result**
B9028AVIAL	Q5® High GC Enhancer	10034782	**Pass**
B9027SVIAL	Q5® Reaction Buffer Pack	10023544	**Pass**

Assay Name/Specification	**Lot # 10035289**
PCR Amplification (7 kb Human Genomic DNA, Buffer) A 50 µl reaction in Q5® Reaction Buffer in the presence of 200 µM dNTPs and 0.5 µM primers containing 20 ng Human Genomic DNA with 1 unit of Q5® High-Fidelity DNA Polymerase for 30 cycles of PCR amplification results in the expected 7 kb product.	**Pass**
Phosphatase Activity (pNPP, Buffer) A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl2 containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 80 µl Q5® Reaction Buffer incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.	**Pass**
qPCR DNA Contamination (E. coli Genomic, Buffer) A minimum of 1 µl of Q5® Reaction Buffer 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.	**Pass**
RNAse Activity Assay (4 Hour 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® Reaction Buffer is incubated at 37ºC. After incubation for 4 hours, >90% of the substrate RNA remains intact as determined by gel	**Pass**

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Assay Name/Specification	Lot # 10035289
electrophoresis using fluorescent detection.	
Non-Specific DNase Activity (16 hour, Buffer) A 50 µl reaction in 2X Q5® Reaction Buffer containing 1 µg of T3 DNA in addition to a reaction containing Lambda-HindIII DNA incubated for 16 hours at 37ºC results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	**Pass**
PCR Amplification (20 kb Lambda DNA, Buffer) A 50 µl reaction in Q5® Reaction Buffer in the presence of 200 µM dNTPs and 1 µM primers containing 10 ng Lambda DNA with 1 unit of Q5® High-Fidelity DNA Polymerase for 22 cycles of PCR amplification results in the expected 20 kb product.	**Pass**
Endonuclease Activity (Nicking, Buffer) A 50 µl reaction in 2X Q5® Reaction Buffer containing 1 µg of supercoiled PhiX174 DNA incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	**Pass**

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

Tony Spear-Alfonso
Production Scientist
05 Nov 2018

Josh Hersey
Packaging Quality Control Inspector
21 Mar 2019