

## New England Biolabs Certificate of Analysis

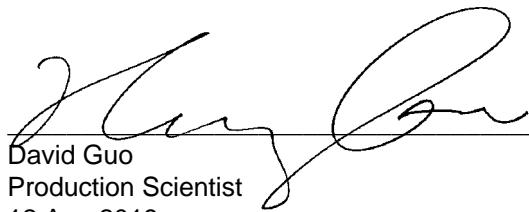
**Product Name:** Q5<sup>®</sup> Reaction Buffer Pack  
**Catalog Number:** B9027S  
**Concentration:** 5 X Concentrate  
**Packaging Lot Number:** 10056112  
**Expiration Date:** 08/2022  
**Storage Temperature:** -20°C  
**Specification Version:** PS-B9027S v1.0  
**Composition (1X):** Proprietary

Q5 <sup>®</sup> Reaction Buffer Pack Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
B9028AVIAL	Q5 <sup>®</sup> High GC Enhancer	10048760	Pass
B9027SVIAL	Q5 <sup>®</sup> Reaction Buffer Pack	10051922	Pass

Assay Name/Specification	Lot # 10056112
<b>Endonuclease Activity (Nicking, Buffer)</b> A 50 µl reaction in 2X Q5 <sup>®</sup> 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
<b>Non-Specific DNase Activity (16 hour, Buffer)</b> A 50 µl reaction in 2X Q5 <sup>®</sup> Reaction Buffer 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
<b>PCR Amplification (20 kb Lambda DNA, Buffer)</b> A 50 µl reaction in Q5 <sup>®</sup> Reaction Buffer in the presence of 200 µM dNTPs and 1 µM primers containing 10 ng Lambda DNA with 1 unit of Q5 <sup>®</sup> High-Fidelity DNA Polymerase for 22 cycles of PCR amplification results in the expected 20 kb product.	Pass
<b>PCR Amplification (7 kb Human Genomic DNA, Buffer)</b> A 50 µl reaction in Q5 <sup>®</sup> 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 <sup>®</sup> High-Fidelity DNA Polymerase for 30 cycles of PCR amplification results in the expected 7 kb product.	Pass
<b>Phosphatase Activity (pNPP, Buffer)</b>	Pass

Assay Name/Specification	Lot # 10056112
<p>A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl<sub>2</sub> containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 80 µl Q5<sup>®</sup> Reaction Buffer incubated for 4 hours at 37°C yields &lt;0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.</p>	
<p><b>qPCR DNA Contamination (E. coli Genomic, Buffer)</b> A minimum of 1 µl of Q5<sup>®</sup> Reaction Buffer 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 Assay (4 Hour 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> Reaction Buffer 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.



David Guo  
Production Scientist  
12 Aug 2019



Michael Tonello  
Packaging Quality Control Inspector  
18 Oct 2019