NEW ENGLAND BioLabs Inc.
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# New England Biolabs
# Certificate of Analysis

| | |
|---|---|
| *Product Name:* | *Standard Taq Reaction Buffer Pack* |
| *Catalog Number:* | *B9014S* |
| *Concentration:* | *10 X Concentrate* |
| *Packaging Lot Number:* | *10064095* |
| *Expiration Date:* | *04/2022* |
| *Storage Temperature:* | *-20°C* |
| *Specification Version:* | *PS-B9014S v2.0* |
| *Composition (1X):* | *10 mM Tris-HCl, 50 mM KCl, 1.5 mM MgCl2, (pH 8.3 @ 25°C)* |

| **Standard Taq Reaction Buffer Pack Component List** | | | |
|---|---|---|---|
| **NEB Part Number** | **Component Description** | **Lot Number** | **Individual QC Result** |
| B9021SVIAL | Magnesium Chloride ($MgCl_2$) Solution | 10054951 | **Pass** |
| B9014SVIAL | Standard Taq Reaction Buffer Pack | 10049383 | **Pass** |

| **Assay Name/Specification** | **Lot # 10064095** |
|---|---|
| **RNase Activity (Extended Digestion)**<br>A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 µl of Standard Taq Reaction Buffer is incubated at 37ºC. After incubation for 16 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection. | **Pass** |
| **qPCR DNA Contamination (E. coli Genomic, Buffer)**<br>A minimum of 1 µl of Standard Taq 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** |
| **Phosphatase Activity (pNPP, Buffer)**<br>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 40 µl Standard Taq Reaction Buffer incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis. | **Pass** |
| **pH (buffers/solutions)**<br>The pH of 10X Standard Taq Reaction Buffer is between pH 8.2 and 8.4 at 25°C. | **Pass** |

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| Assay Name/Specification | Lot # 10064095 |
|---|---|
| **PCR Amplification (5 kb Lambda DNA, Buffer)**<br>A 50 µl reaction in Standard Taq Reaction Buffer in the presence of 200 µM dNTPs and 0.2 µM primers containing 5 ng Lambda DNA with 1.25 units of Taq DNA Polymerase for 25 cycles of PCR amplification results in the expected 5 kb product. | **Pass** |
| **Non-Specific DNase Activity (16 hour, Buffer)**<br>A 50 µl reaction in 2X Standard Taq Reaction Buffer containing 1 µg of T3 or T7 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** |
| **Endonuclease Activity (Nicking, Buffer)**<br>A 50 µl reaction in 2X Standard Taq 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.

Christie Vazquez
Production Scientist
10 Sep 2019

Michael Tonello
Packaging Quality Control Inspector
27 Feb 2020