

## New England Biolabs Certificate of Analysis

**Product Name:** HiFi Taq DNA Ligase  
**Catalog Number:** M0647S  
**Unit Definition:** N/A  
**Lot Number:** 10012281  
**Expiration Date:** 11/2020  
**Storage Temperature:** -20°C  
**Storage Conditions:** 10 mM Tris-HCl, 100 mM KCl, 1 mM DTT, 0.1 mM EDTA, 0.1 % Triton®X-100, 50 % Glycerol, (pH 7.4 @ 25°C)  
**Specification Version:** PS-M0647S v3.0

| HiFi Taq DNA Ligase Component List |                            |            |                      |
|------------------------------------|----------------------------|------------|----------------------|
| NEB Part Number                    | Component Description      | Lot Number | Individual QC Result |
| M0647SVIAL                         | HiFi Taq DNA Ligase        | 10023722   | Pass                 |
| B0647SVIAL                         | HiFi Taq DNA Ligase Buffer | 0011801    | Pass                 |

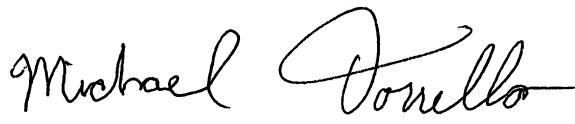
| Assay Name/Specification  | Lot # 10012281 |
|---|----------------|
| <b>Endonuclease Activity (Nicking)</b><br>A 50 µl reaction in NEBuffer 4 containing 1 µg of supercoiled PhiX174 DNA and a minimum of 10 µl of HiFi Taq DNA Ligase incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.   | Pass           |
| <b>Exonuclease Activity (Radioactivity Release)</b><br>A 50 µl reaction in HiFi Taq DNA Ligase Buffer containing 1 µg of a mixture of single and double-stranded [ <sup>3</sup> H] E. coli DNA and a minimum of 10 µl of HiFi Taq DNA Ligase incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.   | Pass           |
| <b>Functional Testing (HiFi Taq DNA Ligase, Fidelity)</b><br>A 20 µl reaction in HiFi Taq DNA Ligase Buffer containing 0.1 µM of an equimolar mix of a FAM-labeled nicked dsDNA substrate and 44 pM HiFi Taq DNA Ligase incubated for 10 minutes at 65°C results in complete ligation of the matched product and <40% ligation of the mismatched products as determined by capillary electrophoresis. | Pass           |
| <b>Non-Specific DNase Activity (16 Hour)</b><br>A 50 µl reaction in NEBuffer 4 containing 1 µg of Lambda-HindIII DNA and a minimum of 2 µl of HiFi Taq DNA Ligase incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.   | Pass           |

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|--|----------------|
| <p><b>qPCR DNA Contamination (E. coli Genomic)</b><br/>A minimum of 1 µl of HiFi Taq DNA Ligase 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> | <b>Pass</b>    |
| <p><b>RNase Activity (Extended Digestion)</b><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 HiFi Taq DNA Ligase 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>    |
| <p><b>Functional Testing (HiFi Taq DNA Ligase, Activity)</b><br/>A 20 µl reaction in HiFi Taq DNA Ligase Buffer containing 0.1 µM of a FAM-labeled nicked dsDNA substrate and 44 pM HiFi Taq DNA Ligase incubated for 10 minutes at 65°C results in 40%+/-20 ligation of the substrate as determined by capillary electrophoresis.</p>   | <b>Pass</b>    |

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



Mary Lorenzen  
Production Scientist  
13 Nov 2018



Michael Tonello  
Packaging Quality Control Inspector  
14 Nov 2018