

## New England Biolabs Certificate of Analysis

**Product Name:** HiFi Taq DNA Ligase  
**Catalog Number:** M0647S  
**Unit Definition:** N/A  
**Packaging Lot Number:** 10220026  
**Expiration Date:** 11/2025  
**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	10220027	Pass
B0647SVIAL	HiFi Taq DNA Ligase Buffer	10156820	Pass

Assay Name/Specification	Lot # 10220026
<b>Endonuclease Activity (Nicking)</b> 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> 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, Activity)</b> 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.	Pass
<b>Functional Testing (HiFi Taq DNA Ligase, Fidelity)</b> 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

Assay Name/Specification	Lot # 10220026
<p><b>Non-Specific DNase Activity (16 Hour)</b> 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.</p>	<b>Pass</b>
<p><b>RNase Activity (Extended 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 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>qPCR DNA Contamination (E. coli Genomic)</b> 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>

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

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03 Jan 2024