

## New England Biolabs Certificate of Analysis

**Product Name:** *HiFi Taq DNA Ligase*  
**Catalog #:** *M0647S*  
**Concentration:** *1 reaction/μl*  
**Unit Definition:** *N/A*  
**Lot #:** *0021707*  
**Assay Date:** *07/2017*  
**Expiration Date:** *07/2019*  
**Storage Temp:** *-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*  
**Effective Date:** *16 Apr 2018*

Assay Name/Specification (minimum release criteria)	Lot #0021707
<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 <i>Taq</i> DNA Ligase incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	<b>Pass</b>
<b>Exonuclease Activity (Radioactivity Release)</b> - A 50 μl reaction in HiFi <i>Taq</i> DNA Ligase Buffer containing 1 μg of a mixture of single and double-stranded [ <sup>3</sup> H] <i>E. coli</i> DNA and a minimum of 10 μl of HiFi <i>Taq</i> DNA Ligase incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.	<b>Pass</b>
<b>Functional Testing (HiFi <i>Taq</i> DNA Ligase, Activity)</b> - A 20 μl reaction in HiFi <i>Taq</i> DNA Ligase Buffer containing 0.1 μM of a FAM-labeled nicked dsDNA substrate and 44 pM HiFi <i>Taq</i> DNA Ligase incubated for 10 minutes at 65°C results in 40%+/-20 ligation of the substrate as determined by capillary electrophoresis.	<b>Pass</b>
<b>Functional Testing (HiFi <i>Taq</i> DNA Ligase, Fidelity)</b> - A 20 μl reaction in HiFi <i>Taq</i> DNA Ligase Buffer containing 0.1 μM of an equimolar mix of a FAM-labeled nicked dsDNA substrate and 44 pM HiFi <i>Taq</i> 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.	<b>Pass</b>
<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 <i>Taq</i> 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.	<b>Pass</b>



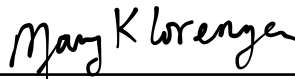
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Assay Name/Specification (minimum release criteria)	Lot #0021707
<p><b>qPCR DNA Contamination (<i>E. coli</i> Genomic)</b> - A minimum of 1 µl of HiFi <i>Taq</i> DNA Ligase is screened for the presence of <i>E. coli</i> genomic DNA using SYBR® Green qPCR with primers specific for the <i>E. coli</i> 16S rRNA locus. Results are quantified using a standard curve generated from purified <i>E. coli</i> genomic DNA. The measured level of <i>E. coli</i> genomic DNA contamination is ≤ 1 <i>E. coli</i> genome.</p> <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 <i>Taq</i> 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>	<p><b>Pass</b></p>  <p><b>Pass</b></p>




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Authorized by  
Derek Robinson  
16 Apr 2018




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Inspected by  
Mary Lorenzen  
25 Jul 2017

