

## New England Biolabs Certificate of Analysis

**Product Name:** *HiFi Taq DNA Ligase*  
**Catalog #:** *M0647S*  
**Concentration:** *1 reaction/μl*  
**Unit Definition:** *N/A*  
**Lot #:** *0031801*  
**Assay Date:** *01/2018*  
**Expiration Date:** *01/2020*  
**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:** *17 Jan 2018*

Assay Name/Specification (minimum release criteria)	Lot #0031801
<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>



