

## New England Biolabs Certificate of Analysis

*Product Name:* BsiWI-HF<sup>®</sup>  
*Catalog #:* R3553S/L  
*Concentration:* 20,000 units/ml  
*Unit Definition:* One unit is defined as the amount of enzyme required to digest 1 µg of PhiX174 DNA in 1 hour at 37°C in a total reaction volume of 50 µl.  
*Lot #:* 0011609  
*Assay Date:* 09/2016  
*Expiration Date:* 09/2018  
*Storage Temp:* -20°C  
*Storage Conditions:* 300 mM NaCl, 10 mM Tris-HCl, 1 mM DTT, 0.1 mM EDTA, 50 % Glycerol, 500 µg/ml BSA, (pH 7.4 @ 25°C)  
*Specification Version:* PS-R3553S/L v1.0  
*Effective Date:* 04 Nov 2016

Assay Name/Specification (minimum release criteria)	Lot #0011609
<b>Endonuclease Activity (Nicking)</b> - A 50 µl reaction in CutSmart <sup>®</sup> Buffer containing 1 µg of supercoiled pUC19 DNA and a minimum of 20 units of BsiWI-HF 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 CutSmart <sup>®</sup> 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 100 units of BsiWI-HF incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.	<b>Pass</b>
<b>Functional Testing (15 minute Digest)</b> - A 50 µl reaction in CutSmart <sup>®</sup> Buffer containing 1 µg of PhiX174 DNA and 1 µl of BsiWI-HF incubated for 15 minutes at 37°C results in complete digestion as determined by agarose gel electrophoresis.	<b>Pass</b>
<b>Ligation and Recutting (Terminal Integrity)</b> - After a 20-fold over-digestion of PhiX174 DNA with BsiWI-HF, >95% of the DNA fragments can be ligated with T4 DNA ligase in 16 hours at 16°C. Of these ligated fragments, >95% can be recut with BsiWI-HF.	<b>Pass</b>
<b>Non-Specific DNase Activity (16 Hour)</b> - A 50 µl reaction in CutSmart <sup>®</sup> Buffer containing 1 µg of PhiX174 DNA and a minimum of 100 units of BsiWI-HF 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>
<b>Protein Purity Assay (SDS-PAGE)</b> - BsiWI-HF is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.	<b>Pass</b>



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\* The BSA in this product has been granted an EDQM "Certificate of Suitability" from the European Directorate for the Quality of Medicines (# R1-CEP-2003-204-Rev00) and has been granted a USDA Certificate for Export of Bovine Blood Plasma/Serum for Manufacture into Pharmaceutical Products.



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Authorized by  
Derek Robinson  
04 Nov 2016



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Inspected by  
Stephanie Cornelio  
07 Sep 2016

