New England Biolabs
Certificate of Analysis

Product Name:  NheI
Catalog #:  R0131S/L
Concentration:  10,000 units/ml
Unit Definition:  One unit is defined as the amount of enzyme required to digest 1 µg of Lambda DNA (HindIII digest) in 1 hour at 37°C in a total reaction volume of 50 µl.
Lot #:  0291504
Assay Date:  04/2015
Expiration Date:  4/2017
Storage Temp:  -20°C
Storage Conditions:  250 mM NaCl, 10 mM Tris-HCl (pH 7.4), 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 0.15% Triton X-100, 200 µg/ml BSA
Specification Version:  PS-R0131S/L v1.0
Effective Date:  02 Oct 2013

<table>
<thead>
<tr>
<th>Assay Name/Specification (minimum release criteria)</th>
<th>Lot #0291504</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>endonuclease Activity (Nicking)</strong> - A 50 µl reaction in NEBuffer 2.1 containing 1 µg of supercoiled PhIX174 DNA and a minimum of 10 Units of NheI incubated for 4 hours at 37°C results in &lt;20% conversion to the nicked form as determined by agarose gel electrophoresis.</td>
<td>Pass</td>
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<tr>
<td><strong>Exonuclease Activity (Radioactivity Release)</strong> - A 50 µl reaction in NEBuffer 2.1 containing 1 µg of a mixture of single and double-stranded [³H] E. coli DNA and a minimum of 250 units of NheI incubated for 4 hours at 37°C releases &lt;0.1% of the total radioactivity.</td>
<td>Pass</td>
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<tr>
<td><strong>Ligation and Recutting (Terminal Integrity)</strong> - After a 20-fold over-digestion of Lambda HindIII DNA with NheI, &gt;95% of the DNA fragments can be ligated with T4 DNA ligase in 16 hours at 16°C. Of these ligated fragments, &gt;95% can be recut with NheI.</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Non-Specific DNase Activity (16 Hour)</strong> - A 50 µl reaction in NEBuffer 2.1 containing 1 µg of Lambda HindIII DNA and a minimum of 50 Units of NheI incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.</td>
<td>Pass</td>
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</tbody>
</table>

* 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.

Authorized by
Derek Robinson
02 Oct 2013

Inspected by
Katrina Francescone
15 Apr 2015