

## New England Biolabs Certificate of Analysis

**Product Name:** XbaI  
**Catalog Number:** R0145S  
**Concentration:** 20,000 U/ml  
**Unit Definition:** One unit is defined as the amount of enzyme required to digest 1 µg of Lambda DNA (dam-/HindIII digest) in rCutSmart Buffer in 1 hour at 37°C in a total reaction volume of 50 µl.  
**Packaging Lot Number:** 10170548  
**Expiration Date:** 04/2024  
**Storage Temperature:** -20°C  
**Storage Conditions:** 10 mM Tris-HCl, 50 mM NaCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 200 µg/ml rAlbumin, (pH 7.4 @ 25°C)  
**Specification Version:** PS-R0145S/L/V v3.0

XbaI Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
R0145SVIAL	XbaI	10149484	Pass
B7024AVIAL	Gel Loading Dye, Purple (6X)	10163561	Pass
B6004SVIAL	rCutSmart™ Buffer	10165692	Pass

Assay Name/Specification	Lot # 10170548
<b>Blue-White Screening (Terminal Integrity)</b> A sample of pUC19 vector linearized with a 10-fold excess of XbaI, religated and transformed into an E. coli strain expressing the LacZ beta fragment gene results in <1% white colonies.	Pass
<b>Protein Purity Assay (SDS-PAGE)</b> XbaI is >95% pure as determined by SDS PAGE analysis using Coomassie Blue detection.	Pass
<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 20 units of XbaI is incubated at 37°C. After incubation for 4 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.	Pass
<b>qPCR DNA Contamination (E. coli Genomic)</b> A minimum of 20 units of XbaI 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	Pass

Assay Name/Specification	Lot # 10170548
<p>are quantified using a standard curve generated from purified E. coli genomic DNA. The measured level of E. coli genomic DNA contamination is <math>\leq 1</math> E. coli genome.</p>	
<p><b>Non-Specific DNase Activity (16 Hour)</b> A 50 <math>\mu</math>l reaction in rCutSmart™ Buffer containing 1 <math>\mu</math>g of Lambda-HindIII dam- DNA and a minimum of 200 units of XbaI 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>Ligation and Recutting (Terminal Integrity)</b> After a 10-fold over-digestion of pBC4XS DNA with XbaI, &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 XbaI.</p>	<b>Pass</b>
<p><b>Endonuclease Activity (Nicking)</b> A 50 <math>\mu</math>l reaction in rCutSmart™ Buffer containing 1 <math>\mu</math>g of supercoiled PhiX174 DNA and a minimum of 100 units of XbaI incubated for 4 hours at 37°C results in &lt;10% conversion to the nicked form as determined by agarose gel electrophoresis.</p>	<b>Pass</b>
<p><b>Functional Testing (15 minute Digest)</b> A 50 <math>\mu</math>l reaction in rCutSmart™ Buffer containing 1 <math>\mu</math>g of Lambda-HindIII dam- DNA and 1 <math>\mu</math>l of XbaI incubated for 15 minutes at 37°C results in complete digestion as determined by agarose gel electrophoresis.</p>	<b>Pass</b>
<p><b>Exonuclease Activity (Radioactivity Release)</b> A 50 <math>\mu</math>l reaction in rCutSmart™ Buffer containing 1 <math>\mu</math>g of a mixture of single and double-stranded [<sup>3</sup>H] E. coli DNA and a minimum of 200 units of XbaI incubated for 4 hours at 37°C releases &lt;0.1% of the total radioactivity.</p>	<b>Pass</b>

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

One or more products referenced in this document may be covered by a 3rd-party trademark. Please visit [www.neb.com/trademarks](http://www.neb.com/trademarks) for additional information.



Penghua Zhang  
Production Scientist  
05 May 2022



Josh Hersey  
Packaging Quality Control Inspector  
10 Nov 2022