NEW ENGLAND Biolabs®

240 County Road
Ipswich, MA 01938-2723

Tel 978-927-5054
Fax 978-921-1350

www.neb.com
info@neb.com

New England Biolabs
Product Specification

Product Name:	*RNase 4*
Catalog #:	*M1284S*
Concentration:	*50,000 units/ml*
Unit Definition:	*One unit of RNase 4 is defined as the amount of enzyme required to cleave 1.8 pmol of a 45-mer RNA substrate containing a single U/A cut site in 60 minutes at 25°C.*
Shelf Life:	*24 months*
Storage Temp:	*-20°C*
Storage Conditions:	*50 mM Sodium Acetate, 100 mM Sodium Chloride, 200 µg/ml rAlbumin, 50% Glycerol (pH 6.0 @ 25°C)*
Specification Version:	*PS-M1284S v1.0*
Effective Date:	*22 Jan 2024*

Assay Name/Specification (minimum release criteria)

Endonuclease Activity (Nicking) - A 50 µl reaction in NEBuffer™ r1.1 containing 1 µg of supercoiled PhiX174 RF I DNA and a minimum of 50 units of RNase 4 incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.

Exonuclease Activity (Radioactivity Release) - A 50 µl reaction in NEBuffer™ r1.1 containing 1 µg of a mixture of single and double-stranded [^{3}H] *E. coli* DNA and a minimum of 50 units of RNase 4 incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.

Non-Specific DNase Activity (16 Hour) - A 50 µl reaction in NEBuffer™ r1.1 containing 1 µg of PhiX174-HaeIII DNA and a minimum of 50 units of RNase 4 incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

Phosphatase Activity (pNPP) - A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM $MgCl_2$ containing 2.5 mM *p*-Nitrophenyl Phosphate (pNPP) and a minimum of 50 units of RNase 4 incubated for 16 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.

Protein Purity (Microfluidic Electrophoresis) - RNase 4 is ≥95% pure as determined by microfluidic electrophoresis.

qPCR DNA Contamination (*E. coli* Genomic) - A minimum of 50 units of RNase 4 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 are quantified using a standard curve generated from purified *E. coli* genomic DNA. The measured level of *E. coli* genomic DNA contamination is ≤ 1 *E. coli* genome.

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Date 22 Jan 2024

Lauren Brown
Quality Approver

ISO 9001 Registered Quality Management
ISO 14001 Registered Environmental Management
ISO 13485 Registered Medical Devices