NEW ENGLAND BioLabs® Inc.

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New England Biolabs
Product Specification

Product Name:	*Standard Taq (Mg-free) Reaction Buffer Pack*
Catalog #:	*B9015S*
Concentration:	*10X Concentrate*
Shelf Life:	*60 months*
Storage Temp:	*-20°C*
Composition (1X):	*10 mM Tris-HCl, 50 mM KCl, (pH 8.3 @ 25°C)*
Specification Version:	*PS-B9015S v1.0*
Effective Date:	*10 Aug 2016*

Assay Name/Specification (minimum release criteria)

Endonuclease Activity (Nicking, Mg-Free Buffer) - A 50 µl reaction in 2X Standard *Taq* (Mg-free) Reaction Buffer and 3 mM $MgCl_2$ containing 1 µg of supercoiled PhiX174 DNA incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.

Non-Specific DNase Activity (16 hour, Mg-Free Buffer) - A 50 µl reaction in 2X Standard *Taq* (Mg-free) Reaction Buffer and 3 mM $MgCl_2$ containing 1 µg of T3 DNA in addition to a reaction containing Lambda-HindIII DNA incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

PCR Amplification (5 kb Lambda DNA, Mg-Free Buffer) - A 50 µl reaction in Standard *Taq* (Mg-free) Reaction Buffer and 1.5 mM $MgCl_2$ in the presence of 200 µM dNTPs and 0.2 µM primers containing 5 ng Lambda DNA with 1.25 units of *Taq* DNA Polymerase for 25 cycles of PCR amplification results in the expected 5 kb product.

pH (buffers/solutions) - The pH of 10X Standard *Taq* (Mg-free) Reaction Buffer is between pH 8.2 and 8.4 at 25°C.

Phosphatase Activity (pNPP, Buffer) - A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM $MgCl_2$ containing 2.5 mM *p*-Nitrophenyl Phosphate (pNPP) and a minimum of 40 µl Standard *Taq* (Mg-free) Reaction Buffer incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.

qPCR DNA Contamination (*E. coli* Genomic, Buffer) - A minimum of 1 µl of Standard *Taq* (Mg-free) Reaction Buffer 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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Product Specification

Assay Name/Specification (minimum release criteria)
RNase Activity (Extended Digestion) - A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 1 µl of Standard *Taq* (Mg-free) Reaction Buffer is incubated at 37°C. After incubation for 16 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.

Date 10 Aug 2016

Derek Robinson
Director of Quality Control