NEW ENGLAND BioLabs® Inc.

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New England Biolabs
Product Specification

Product Name:	*Standard Taq Reaction Buffer Pack*
Catalog #:	*B9014S*
Concentration:	*10X Concentrate*
Shelf Life:	*60 months*
Storage Temp:	*-20°C*
Composition (1X):	*10 mM Tris-HCl, 50 mM KCl, 1.5 mM $MgCl_2$, (pH 8.3 @ 25°C)*
Specification Version:	*PS-B9014S v1.0*
Effective Date:	*10 Aug 2016*

Assay Name/Specification (minimum release criteria)

Endonuclease Activity (Nicking, Buffer) - A 50 µl reaction in 2X Standard *Taq* Reaction Buffer 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, Buffer) - A 50 µl reaction in 2X Standard *Taq* Reaction Buffer 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, Buffer) - A 50 µl reaction in Standard *Taq* Reaction Buffer 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* 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* 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* 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* 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

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