

## New England Biolabs Product Specification

|                               |  |
|-------------------------------|--|
| <i>Product Name:</i>          | <i>BSA, Molecular Biology Grade</i>  |
| <i>Catalog #:</i>             | <i>B9000S</i>  |
| <i>Concentration:</i>         | <i>20 mg/ml</i>  |
| <i>Shelf Life:</i>            | <i>36 months</i>   |
| <i>Storage Temp:</i>          | <i>-20°C</i>   |
| <i>Composition (1X):</i>      | <i>20 mM Tris-HCl, 100 mM KCl, 0.1 mM EDTA, 50 % Glycerol, (pH 8.0 @ 25°C)</i> |
| <i>Specification Version:</i> | <i>PS-B9000S v1.0</i>  |
| <i>Effective Date:</i>        | <i>28 Jul 2017</i>   |

### Assay Name/Specification (minimum release criteria)

**Endonuclease Activity (Nicking)** - A 50 µl reaction in NEBuffer 4 containing 1 µg of supercoiled PhiX174 RF I DNA and a minimum of 20 µg of BSA, Molecular Biology Grade incubated for 4 hours at 37°C results in <20% conversion to the nicked form as determined by agarose gel electrophoresis.

**Exonuclease Activity (Radioactivity Release)** - A 50 µl reaction in NEBuffer 4 containing 1 µg of a mixture of single and double-stranded [<sup>3</sup>H] *E. coli* DNA and a minimum of 100 µg of BSA, Molecular Biology Grade 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 4 containing 1 µg of Lambda-HindIII DNA and a minimum of 100 µg of BSA, Molecular Biology Grade 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 (FAM Labeled Oligo)** - A 50 ul reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent internal labeled oligonucleotide with a 5' phosphate and a minimum of 100 µg of BSA, Molecular Biology Grade incubated for 16 hours at 37°C yields <5% degradation as determined by capillary electrophoresis.

**Protein Concentration (A280)** - The concentration of BSA, Molecular Biology Grade is 20 mg/ml +/- 5% as determined by UV absorption at 280 nm. Protein concentration is determined by the Pace method using the extinction coefficient of 42,925 and molecular weight of 66,464 daltons for BSA, Molecular Biology Grade (Pace, C.N. et al. (1995) Protein Sci., 4, 2411-2423).

**qPCR DNA Contamination (*E. coli* Genomic)** - A minimum of 10 µg of BSA, Molecular Biology Grade 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.



## New England Biolabs Product Specification

### Assay Name/Specification (minimum release criteria)

**RNase Activity Assay (2 Hour Digestion)** - A 10 µl reaction in NEBuffer 4 containing 40 ng of fluorescein labeled RNA transcript and a minimum of 20 µg of BSA, Molecular Biology Grade incubated for 2 hours at 37°C results in no detectable degradation of the RNA as determined by gel electrophoresis using fluorescent detection.

**RNase Activity (Extended Digestion)** - A 10 µl reaction in NEBuffer 4 containing 40 ng of fluorescein labeled RNA transcript and a minimum of 20 µg of BSA, Molecular Biology Grade 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.

**Single Stranded DNase Activity (FAM-Labeled Oligo)** - A 50 µl reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent internal labeled oligonucleotide and a minimum of 100 µg of BSA, Molecular Biology Grade incubated for 16 hours at 37°C yields <5% degradation as determined by capillary electrophoresis.

*\* 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.*



Date 28 Jul 2017

Derek Robinson  
Director of Quality Control

