NEW ENGLAND BioLabs Inc.
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New England Biolabs
Certificate of Analysis

Product Name:	*Magnesium Sulfate (MgSO4) Solution*
Catalog Number:	*B1003S*
Concentration:	*100 mM*
Lot Number:	*10048537*
Expiration Date:	*02/2024*
Storage Temperature:	*-20°C*
Specification Version:	*PS-B1003S v1.0*
Composition (1X):	*100 mM MgSO4*

Magnesium Sulfate (MgSO4) Solution Component List			
NEB Part Number	**Component Description**	**Lot Number**	**Individual QC Result**
B1003SVIAL	Magnesium Sulfate ($MgSO_4$) Solution	10042724	**Pass**

Assay Name/Specification	**Lot # 10048537**
Conductivity (buffers/solutions) The conductivity of 100 mM Magnesium Sulfate (MgSO4) Solution is between 8.5 and 10.5 mS/cm at 25°C.	**Pass**
Endonuclease Activity (Nicking) A 50 µl reaction in NEBuffer 2 containing 1 µg of supercoiled PhiX174 DNA and a minimum of 5 µl of Magnesium Sulfate (MgSO4) Solution incubated for 4 hours at 37ºC results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	**Pass**
Non-Specific DNase Activity (16 Hour) A 50 µl reaction in NEBuffer 2 containing 1 µg of T3 DNA in addition to a reaction containing Lambda-HindIII DNA and a minimum of 5 µl of Magnesium Sulfate (MgSO4) Solution incubated for 16 hours at 37ºC results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	**Pass**
PCR Amplification (5.0 kb Lambda DNA, Mg2+) A 50 µl reaction in ThermoPol II® (Mg-free) Reaction Buffer containing 2 mM Magnesium Sulfate (MgSO4) Solution 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 5.0 kb product.	**Pass**
pH (buffers/solutions)	**Pass**

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Assay Name/Specification	Lot # 10048537
The pH of 100 mM Magnesium Sulfate (MgSO4) Solution is between pH 5.3 and 5.7 at 25°C.	
Phosphatase Activity (pNPP, Buffer) A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl2 containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 20 µl Magnesium Sulfate (MgSO4) Solution incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.	**Pass**
qPCR DNA Contamination (E. coli Genomic) A minimum of 1 µl of Magnesium Sulfate (MgSO4) Solution 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.	**Pass**
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 Magnesium Sulfate (MgSO4) Solution is incubated at 37ºC. After incubation for 16 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.	**Pass**

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

Doreen Duquette
Production Scientist
23 Apr 2019

Michael Tonello
Packaging Quality Control Inspector
27 Aug 2019