

## New England Biolabs Certificate of Analysis

**Product Name:** *Magnesium Sulfate (MgSO<sub>4</sub>) Solution*  
**Catalog Number:** *B1003S*  
**Concentration:** *100 mM*  
**Packaging Lot Number:** *10171306*  
**Expiration Date:** *03/2027*  
**Storage Temperature:** *-20°C*  
**Specification Version:** *PS-B1003S v3.0*  
**Composition (1X):** *100 mM MgSO<sub>4</sub>*

Magnesium Sulfate (MgSO <sub>4</sub> ) Solution Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
B1003SVIAL	Magnesium Sulfate (MgSO <sub>4</sub> ) Solution	10159437	Pass

Assay Name/Specification	Lot # 10171306
<p><b>qPCR DNA Contamination (E. coli Genomic)</b>            A minimum of 1 µl of Magnesium Sulfate (MgSO<sub>4</sub>) 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.</p>	<b>Pass</b>
<p><b>Phosphatase Activity (pNPP, Buffer)</b>            A 200 µl reaction in 1M Diethanolamine @ pH 9.8 and 0.5 mM MgCl<sub>2</sub> containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 20 µl Magnesium Sulfate (MgSO<sub>4</sub>) Solution incubated for 4 hours at 37°C yields &lt;0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.</p>	<b>Pass</b>
<p><b>PCR Amplification (5.0 kb Lambda DNA, Mg<sup>2+</sup>)</b>            A 50 µl reaction in ThermoPol II® (Mg-free) Reaction Buffer containing 2 mM Magnesium Sulfate (MgSO<sub>4</sub>) 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.</p>	<b>Pass</b>
<p><b>RNase Activity (Extended Digestion)</b>            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 (MgSO<sub>4</sub>) Solution is incubated at 37°C. After incubation for 16 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.</p>	<b>Pass</b>

Assay Name/Specification	Lot # 10171306
<p><b>Non-Specific DNase Activity (16 Hour)</b> A 50 µl reaction in NEBuffer 2 containing 1 µg of T3 or T7 DNA in addition to a reaction containing Lambda-HindIII DNA and a minimum of 5 µl of Magnesium Sulfate (MgSO<sub>4</sub>) Solution incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.</p>	<b>Pass</b>
<p><b>Conductivity (buffers/solutions)</b> The conductivity of 100 mM Magnesium Sulfate (MgSO<sub>4</sub>) Solution is between 8.5 and 10.5 mS/cm at 25°C.</p>	<b>Pass</b>
<p><b>Endonuclease Activity (Nicking)</b> A 50 µl reaction in NEBuffer 2 containing 1 µg of supercoiled PhiX174 DNA and a minimum of 5 µl of Magnesium Sulfate (MgSO<sub>4</sub>) Solution incubated for 4 hours at 37°C results in &lt;10% conversion to the nicked form as determined by agarose gel electrophoresis.</p>	<b>Pass</b>

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

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