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# New England Biolabs
# Certificate of Analysis

| | |
|---|---|
| *Product Name:* | *Magnesium Chloride (MgCl2) Solution* |
| *Catalog Number:* | *B9021S* |
| *Concentration:* | *25 mM* |
| *Packaging Lot Number:* | *10242785* |
| *Expiration Date:* | *12/2028* |
| *Storage Temperature:* | *-20°C* |
| *Specification Version:* | *PS-B9021S v2.0* |
| *Composition (1X):* | *25 mM MgCl2* |

| **Magnesium Chloride (MgCl2) Solution Component List** | | | |
|---|---|---|---|
| **NEB Part Number** | **Component Description** | **Lot Number** | **Individual QC Result** |
| B9021SVIAL | Magnesium Chloride ($MgCl_2$) Solution | 10221498 | **Pass** |

| **Assay Name/Specification** | **Lot # 10242785** |
|---|---|
| **Conductivity (buffers/solutions)**<br>The conductivity of 25 mM Magnesium Chloride (MgCl2) Solution is between 5.1 and 6.2 mS/cm at 25°C. | **Pass** |
| **Endonuclease Activity (Nicking)**<br>A 50 µl reaction in NEBuffer 2 containing 1 µg of supercoiled PhiX174 DNA and a minimum of 20 µl of Magnesium Chloride (MgCl2) 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)**<br>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 20 µl of Magnesium Chloride (MgCl2) 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+)**<br>A 50 µl reaction in Standard Taq (Mg-free) Reaction Buffer containing 1.5 mM Magnesium Chloride (MgCl2) 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** |
| **Phosphatase Activity (pNPP)** | **Pass** |

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| Assay Name/Specification | Lot # 10242785 |
|---|---|
| A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM MgCl2 containing 2.5 mM p-Nitrophenyl Phosphate (pNPP) and a minimum of 40 µl of Magnesium Chloride (MgCl2) Solution incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis. | |
| **RNase Activity (Extended Digestion)**<br>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 Chloride (MgCl2) 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** |
| **qPCR DNA Contamination (E. coli Genomic)**<br>A minimum of 1 µl of Magnesium Chloride (MgCl2) 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** |

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

One or more products referenced in this document may be covered by a 3rd-party trademark. Please visit www.neb.com/trademarks for additional information.

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30 Jan 2024

Michael Tonello
Packaging Quality Control Inspector
10 Jun 2024