NEW ENGLAND BioLabs Inc.

240 County Road
Ipswich, MA 01938-2723

Tel 978-927-5054
Fax 978-921-1350

www.neb.com
info@neb.com

New England Biolabs
Certificate of Analysis

Product Name:	*Magnesium Chloride ($MgCl_2$) Solution*
Catalog #:	*B9021S*
Concentration:	*25 mM*
Lot #:	*0031705*
Assay Date:	*05/2017*
Expiration Date:	*5/2022*
Storage Temp:	*-20°C*
Composition (1X):	*25 mM $MgCl_2$*
Specification Version:	*PS-B9021S v1.0*
Effective Date:	*10 May 2017*

Assay Name/Specification (minimum release criteria)	**Lot #0031705**
Conductivity (buffers/solutions) - The conductivity of 25 mM Magnesium Chloride ($MgCl_2$) Solution is between 5.1 and 6.2 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 20 µl of Magnesium Chloride ($MgCl_2$) Solution incubated for 4 hours at 37°C 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 20 µl of Magnesium Chloride ($MgCl_2$) Solution incubated for 16 hours at 37°C 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 Standard *Taq* (Mg-free) Reaction Buffer containing 1.5 mM Magnesium Chloride ($MgCl_2$) 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) - A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM $MgCl_2$ containing 2.5 mM *p*-Nitrophenyl Phosphate (pNPP) and a minimum of 40 µl of Magnesium Chloride ($MgCl_2$) Solution incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.	**Pass**

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

NEW ENGLAND BioLabs Inc.

240 County Road
Ipswich, MA 01938-2723

Tel 978-927-5054
Fax 978-921-1350

www.neb.com
info@neb.com

New England Biolabs
Certificate of Analysis

Assay Name/Specification (minimum release criteria)	**Lot #0031705**
qPCR DNA Contamination (*E. coli* Genomic) - A minimum of 1 µl of Magnesium Chloride ($MgCl_2$) 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 Chloride ($MgCl_2$) Solution 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.	**Pass**

Authorized by
Karen Moreira
10 May 2017

Inspected by

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