

Certificate of Analysis

Date of Testing: 2022-12-05 17:02:36

Date of Next Testing: 2023-12-05 17:02:36

Product Name: **1-Methyl-2-pyrrolidinone**

CAS Number: 872-50-4

Specifications & Purity: electronic grade,99.9%

Lot #: K2230922

SKU #: **M103246**

Analysis: **151151**

Storage Temperature: Protected from light,Desiccated

Parameter	Limit Values	Result
Water by Karl Fischer	0-0.03 (%)	0.01 %
Refractive index n _{20/D}	1.468-1.472	1.47
Hazen	0-25	24.00
Sodium(Na)	0-10 (ppb)	0.00 ppb
Molybdenum(Mo)	0-10 (ppb)	0.00 ppb
Phosphate(PO ₄)	0-0.05 (ppm)	0.00 ppm
Iron(Fe)	0-10 (ppb)	0.00 ppb
Calcium(Ca)	0-5 (ppm)	0.00 ppm
total diol	0-20 (ppm)	12.00 ppm
Cadmium(Cd)	0-10 (ppb)	0.00 ppb
Purity(GC)	99.9-100 (%)	99.95 %
Lithium(Li)	0-10 (ppb)	0.00 ppb
Potassium(K)	0-10 (ppb)	0.00 ppb
Magnesium(Mg)	0-10 (ppb)	0.00 ppb
Sulfate(SO ₄ ²⁻)	0-0.05 (%)	0.00 %
Zinc(Zn)	0-10 (ppb)	0.00 ppb
Nickel(Ni)	0-10 (ppb)	0.00 ppb
(NO ₃)Nitrate	0-0.05 (ppm)	0.00 ppm
Copper(Cu)	0-10 (ppb)	0.00 ppb
Cobalt(Co)	0-10 (ppb)	0.00 ppb
Aluminum(Al)	0-10 (ppb)	0.00 ppb
Manganese(Mn)	0-10 (ppb)	0.00 ppb
Chloride (Cl ⁻)	0-0.05 (ppm)	0.02 ppm
Silver (Ag)	0-10 (ppb)	0.00 ppb
Total Amine	0-20 (ppm)	11.00 ppm
Chromium(Cr)	0-10 (ppb)	0.00 ppb

ALADDIN SCIENTIFIC CORPORATION

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Parameter	Limit Values	Result
Lead(Pb)	0-10 (ppb)	0.00 ppb
Appearance (M103246)	Colorless to light yellow liquid	Colorless to light yellow liquid
Infrared spectrum	Conforms to Structure	Conforms to Structure

A handwritten signature in black ink that reads "John Su".

John Su
QA & QC Manager