

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2025-09-19 17:01:41  
Date of Next Testing: 2026-09-19 17:01:41  
Product Name: **1-Methyl-2-pyrrolidinone**  
CAS Number: 872-50-4  
Specifications & Purity: electronic grade, ≥99.9%  
Lot #: I2515501  
SKU #: **M103246**  
Version: **0**  
Analysis #: **561545**  
Storage Temperature: Protected from light, Argon charged, Desiccated

| Parameter                               | Limit Values | Result    |
|---|--------------|-----------|
| Refractive index n <sub>20</sub> /D     | 1.468-1.472  | 1.47      |
| Hazen                                   | 0-25         | 0.00      |
| Sodium(Na)                              | 0-10 (ppb)   | 0.00 ppb  |
| Molybdenum(Mo)                          | 0-10 (ppb)   | 0.00 ppb  |
| Phosphate(PO <sub>4</sub> )             | 0-0.05 (ppm) | 0.00 ppm  |
| Iron(Fe)                                | 0-10 (ppb)   | 0.00 ppb  |
| Calcium(Ca)                             | 0-5 (ppm)    | 0.18 ppm  |
| total diol                              | 0-20 (ppm)   | 0.00 ppm  |
| Cadmium(Cd)                             | 0-10 (ppb)   | 0.00 ppb  |
| Purity(GC)                              | 99.9-100 (%) | 99.91%    |
| Lithium(Li)                             | 0-10 (ppb)   | 1.44 ppb  |
| Potassium(K)                            | 0-10 (ppb)   | 0.00 ppb  |
| Sulfate(SO <sub>4</sub> <sup>2-</sup> ) | 0-0.05 (%)   | 0.00 %    |
| Nickel(Ni)                              | 0-10 (ppb)   | 0.00 ppb  |
| (NO <sub>3</sub> )Nitrate               | 0-0.05 (ppm) | 0.00 ppm  |
| Copper(Cu)                              | 0-10 (ppb)   | 1.46 ppb  |
| Cobalt(Co)                              | 0-10 (ppb)   | 0.17 ppb  |
| Aluminum(Al)                            | 0-10 (ppb)   | 4.78 ppb  |
| Manganese(Mn)                           | 0-10 (ppb)   | 4.85 ppb  |
| Chloride (Cl <sup>-</sup> )             | 0-0.05 (ppm) | 0.01 ppm  |
| Silver(Ag)                              | 0-10 (ppb)   | 0.00 ppb  |
| Chromium(Cr)                            | 0-10 (ppb)   | 1.25 ppb  |
| Lead(Pb)                                | 0-10 (ppb)   | 0.41 ppb  |
| Water by Karl Fischer                   | 0-0.03 (%)   | 0.03 %    |
| Magnesium(Mg)                           | 0-10 (ppb)   | 10.00 ppb |

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|----------------------|----------------------------------|----------------------------------|
| Zinc(Zn)             | 0-10 (ppb)                       | 10.00 ppb                        |
| Total Amine          | 0-20 (ppm)                       | 20.00 ppm                        |
| 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