

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2022-09-29 14:19:12
 Date of Next Testing: 2023-09-29 14:19:12
 Product Name: **Ammonia solution**
 CAS Number: 1336-21-6
 Specifications & Purity: $\geq 28\%$ NH₃ in H₂O, Electronic grade
 Lot #: I2221097
 SKU #: **A112083**
Analysis: **133536**
 Storage Temperature: Store at 2-8°C, Protected from light

| Parameter | Limit Values | Result |
|---|--------------|----------|
| Cadmium(Cd) | 0-50 (ppb) | 0.01 ppb |
| Calcium(Ca) | 0-0.5 (ppm) | 0.00 ppm |
| Assay(as NH ₃) | 28-30 (%) | 28.91 % |
| Germanium(Ge) | 0-50 (ppb) | 0.00 ppb |
| Magnesium(Mg) | 0-50 (ppb) | 0.01 ppb |
| Beryllium(Be) | 0-50 (ppb) | 0.01 ppb |
| Barium(Ba) | 0-50 (ppb) | 0.04 ppb |
| Stannum(Sn) | 0-50 (ppb) | 0.01 ppb |
| Gallium(Ga) | 0-50 (ppb) | 0.00 ppb |
| Sb | 0-50 (ppb) | 0.01 ppb |
| Aluminum(Al) | 0-50 (ppb) | 0.05 ppb |
| Copper(Cu) | 0-40 (ppb) | 0.01 ppb |
| Cobalt(Co) | 0-50 (ppb) | 0.00 ppb |
| Chromium(Cr) | 0-50 (ppb) | 0.18 ppb |
| Lithium(Li) | 0-50 (ppb) | 0.01 ppb |
| Titanium(Ti) | 0-50 (ppb) | 0.00 ppb |
| Ta | 0-50 (ppb) | 0.00 ppb |
| Zirconium(Zr) | 0-50 (ppb) | 0.00 ppb |
| Chloride (Cl-) | 0-0.3 (ppm) | 0.10 ppm |
| Strontium(Sr) | 0-50 (ppb) | 0.00 ppb |
| Silver (Ag) | 0-20 (ppb) | 0.01 ppb |
| Niobium(Nb) | 0-50 (ppb) | 0.00 ppb |
| Sodium(Na) | 0-50 (ppb) | 0.05 ppb |
| Sulfate(SO ₄ ²⁻) | 0-0.8 (ppm) | 0.20 ppm |
| (Pb)Lead | 0-25 (ppb) | 0.01 ppb |
| Potassium(K) | 0-50 (ppb) | 0.06 ppb |

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|----------------|--------------|----------|
| Manganese(Mn) | 0-50 (ppb) | 0.00 ppb |
| Bismuth(Bi) | 0-50 (ppb) | 0.01 ppb |
| (As)Arsenic | 0-50 (ppb) | 0.01 ppb |
| Molybdenum(Mo) | 0-50 (ppb) | 0.00 ppb |
| Zinc(Zn) | 0-30 (ppb) | 0.05 ppb |
| Phosphate(PO4) | 0-0.4 (ppm) | 0.40 ppm |
| Boron(B) | 0-50 (ppb) | 0.24 ppb |
| Vanadium(V) | 0-50 (ppb) | 0.00 ppb |
| Nickel(Ni) | 0-20 (ppb) | 0.00 ppb |
| Iron(Fe) | 0-50 (ppb) | 0.07 ppb |
| Aurum(Au) | 0-50 (ppb) | 0.03 ppb |

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

John Su
QA & QC Manager