

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

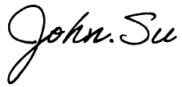
Date of Testing: 2023-08-18 14:24:04
 Date of Next Testing: 2026-08-17 14:24:04
 Product Name: **Ethylene glycol**
 CAS Number: 107-21-1
 Specifications & Purity: Ultrapure BioReagent, ≥99.5% (GC)
 Lot #: H2316509
 SKU #: **E431350**
Analysis: **260949**
 Storage Temperature: Argon charged

Parameter	Limit Values	Result
Free carboxylic acid (as ACOH)	0-0.002 (%)	0.00000 %
Purity(GC)	99.5-100 (%)	99.68 %
Refractive index n ₂₀ /D	1.430-1.432	1.43
Water by Karl Fischer	0-0.1 (%)	0.02 %
Aluminum(Al)	0-5 (ppm)	0.00 ppm
Barium(Ba)	0-0.1 (ppm)	0.00 ppm
Bismuth(Bi)	0-0.1 (ppm)	0.05 ppm
Calcium(Ca)	0-0.5 (ppm)	0.00 ppm
Cadmium(Cd)	0-0.05 (ppm)	0.00 ppm
Cobalt(Co)	0-0.02 (ppm)	0.00 ppm
Chromium(Cr)	0-0.02 (ppm)	0.00 ppm
Copper(Cu)	0-0.02 (ppm)	0.00 ppm
Iron(Fe)	0-0.1 (ppm)	0.00 ppm
Potassium(K)	0-0.5 (ppm)	0.07 ppm
Lithium(Li)	0-0.1 (ppm)	0.00 ppm
Magnesium(Mg)	0-0.1 (ppm)	0.00 ppm
Manganese(Mn)	0-0.02 (ppm)	0.00 ppm
Molybdenum(Mo)	0-0.1 (ppm)	0.00 ppm
Sodium(Na)	0-1 (ppm)	0.47 ppm
Nickel(Ni)	0-0.02 (ppm)	0.00 ppm
Lead(Pb)	0-0.1 (ppm)	0.00 ppm
Strontium(Sr)	0-0.1 (ppm)	0.00 ppm
Zinc(Zn)	0-0.1 (ppm)	0.00 ppm
Arsenic(As)	0-0.1 (ppm)	0.00000 ppm
Chloride (Cl ⁻)	0-10 (ppm)	0.00 ppm
Sulfate(SO ₄ ²⁻)	0-10 (ppm)	0.00 ppm

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Parameter	Limit Values	Result
UV-ABS.at 260 nm	≤ 0.03	0.02600
UV-ABS.at 280 nm	≤ 0.01	0.00900
Appearance(E431350)	Colorless Liquid	Colorless liquid
Residue (filter test)	Pass	Pass
Infrared spectrum	Conforms to Structure	Conforms to Structure

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

John Su
QA & QC Manager