

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2022-11-17 18:08:48
 Date of Next Testing: 2026-11-16 18:08:48
 Product Name: **D-(+)-Malic acid**
 CAS Number: 636-61-3
 Specifications & Purity: $\geq 99\%$
 Lot #: K2216276
 SKU #: **M109342**
 Version: **0**
 Analysis #: **079003**
 Storage Temperature: Protected from light, Room temperature

Parameter	Limit Values	Result
Specific Rotation $[\alpha]_{20/D(c=8.5 \text{ in H}_2\text{O})}$	1.6-2.6 (°)	1.81600 °
Sulfate Ash	0-0.1 (%)	0.05000 %
Water by Karl Fischer	0-0.5 (%)	0.30000 %
Purity(Neutralization titration)	98.5-101.5 (%)	99.11000 %
Melting point	99-105 (°C)	104.99000 °C
Appearance (M109342)	White to Off-White Solid, Powder, or Crystals	White to Off-White Solid, Powder, or Crystals
Infrared spectrum	Conforms to Structure	Conforms to Structure



John Su
QA & QC Manager