

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2023-07-19 10:54:01

Date of Next Testing: 2027-07-18 10:54:01

Product Name: **D-(+)-Malic acid**

CAS Number: 636-61-3

Specifications & Purity: $\geq 99\%$

Lot #: G2310652

SKU #: **M109342**

Version: **0**

Analysis #: **241512**

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 (°)	1.75600 °
Sulfate Ash	0-0.1 (%)	0.03000 %
Water by Karl Fischer	0-0.5 (%)	0.30000 %
Purity(Neutralization titration)	98.5-101.5 (%)	99.78000 %
Melting point	99-105 (°C)	104.26000 °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