

## Certificate of Analysis

Date of Testing: 2023-01-16 15:33:59

Date of Next Testing: 2027-01-15 15:33:59

Product Name: **L-(-)-Malic acid**

CAS Number: 97-67-6

Specifications & Purity: 98%

Lot #: A2305551

SKU #: **M105695**

Version: **0**

Analysis #: **159380**

Storage Temperature: Argon charged

| Parameter                                                         | Limit Values             | Result                   |
|-------------------------------------------------------------------|--------------------------|--------------------------|
| Purity(Neutralization titration)                                  | 98-102 (%)               | 99.46 %                  |
| Specific Rotation [α] <sub>20</sub> /D(c=8.5 in H <sub>2</sub> O) | -2.6--1.6 (°)            | -2.11 °                  |
| Melting point                                                     | 101-105 (°C)             | 104.90000 °C             |
| Appearance (M105695)                                              | White Powder or Crystals | White Powder or Crystals |
| Solubility in H <sub>2</sub> O                                    | Almost transparency      | almost transparency      |
| Infrared spectrum                                                 | Conforms to Structure    | Conforms to Structure    |

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

John Su  
QA & QC Manager