

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2022-03-23 11:21:36  
 Date of Next Testing: 2026-03-22 11:21:36  
 Product Name: **L-Lactic Acid**  
 CAS Number: 79-33-4  
 Specifications & Purity: High purity grade, 90%  
 Lot #: C2219306  
 SKU #: **L107596**  
**Analysis:** **078588**  
 Storage Temperature: Store at 2-8°C, Argon charged

| Parameter   | Limit Values                     | Result                           |
|---|----------------------------------|----------------------------------|
| Chloride  | 0-0.001 (%)                      | 0.00 %                           |
| Lead(Pb)  | 0-0.5 (ppm)                      | 0.50 ppm                         |
| Sulfate(SO42-)  | 0-0.001 (%)                      | 0.00 %                           |
| Calcium(Ca)   | 0-0.0001 (%)                     | 0.00 %                           |
| Color test (APHA)   | 0-10 (APHA)                      | 9.00 APHA                        |
| Ignition Residue  | 0-0.01 (%)                       | 0.01 %                           |
| Cyanide   | 0-0.0001 (%)                     | 0.00 %                           |
| Mercury   | 0-1 (ppm)                        | 0.50 ppm                         |
| (As)Arsenic   | 0-0.0001 (%)                     | 0.00 %                           |
| Methanol(CH3OH)   | 0-0.05 (%)                       | 0.05 %                           |
| Iron(Fe)  | 0-0.0001 (%)                     | 0.00 %                           |
| Heavy metals  | 0-0.0005 (%)                     | 0.00 %                           |
| Density (20°C)  | 1.2-1.22 (g/ml)                  | 1.21 g/ml                        |
| Specific Rotation [α] <sub>20</sub> /D(c=2.5 in 1.5mol/L NaOH sol.) | -15--10 (°)                      | -10.12 °                         |
| Purity (T)  | 89.5-90.5 (%)                    | 90.49 %                          |
| Appearance (L107596)  | Colorless to light yellow liquid | Colorless to light yellow liquid |
| Citric acid, oxalic acid, tartaric acid, and phosphoric acid        | is not muddy                     | is not muddy                     |
| Easy carbon compounds   | does not change to dark gray     | does not change to dark gray     |
| Identification (Acidic aqueous solution)                            | lactate positive reaction        | lactate positive reaction        |
| Infrared spectrum   | Conforms to Structure            | Conforms to Structure            |
| Reducing sugars   | No red precipitate               | No red precipitate               |
| The ether insolubles  | by EP                            | by EP                            |
| Volatile fatty acids  | passes test                      | Passes test                      |



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

John Su  
QA & QC Manager