

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2022-05-21 10:45:54  
 Date of Next Testing: 2026-05-20 10:45:54  
 Product Name: **L-Lactic Acid**  
 CAS Number: 79-33-4  
 Specifications & Purity: Chiral grade, 90%  
 Lot #: C2203083  
 SKU #: **L122090**  
**Analysis:** **091257**  
 Storage Temperature: Store at 2-8°C, Argon charged

Parameter	Limit Values	Result
Calcium(Ca)	0-0.0001 (%)	0.00 %
Methanol(CH <sub>3</sub> OH)	0-0.2 (%)	0.19 %
Chloride	0-0.001 (%)	0.00 %
(As)Arsenic	0-0.0001 (%)	0.00 %
Purity(Neutralization titration)	89.5-110.5 (%)	89.53 %
Sulfate(SO <sub>4</sub> <sup>2-</sup> )	0-0.001 (%)	0.00 %
Refractive index n <sub>20</sub> /D	1.426-1.431	1.43
Lead(Pb)	0-0.5 (ppm)	0.00 ppm
Heavy metals	0-0.0005 (%)	0.00 %
Ignition Residue	0-0.05 (%)	0.00 %
Density (20°C)	1.2-1.22 (g/ml)	1.22 g/ml
Cyanide	0-0.0001 (%)	0.00 %
Specific Rotation [α] <sub>20</sub> /D(c=2.5 in 1.5mol/L NaOH sol.)	-15--10 (°)	-13.19 °
Mercury	0-1 (ppm)	0.01 ppm
Iron(Fe)	0-0.0005 (%)	0.00 %
Optical purity	99.5-100 (%)	99.55 %
Appearance (L122090)	Colorless Liquid	Colorless 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
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". The signature is written in a cursive, flowing style.

John Su  
QA & QC Manager