

Certificate of Analysis

Date of Testing: 2023-01-09 16:51:36
 Date of Next Testing: 2027-01-08 16:51:36
 Product Name: **L-Lactic Acid**
 CAS Number: 79-33-4
 Specifications & Purity: Chiral grade, 90%
 Lot #: A2304390
 SKU #: **L122090**
Analysis: **159906**
 Storage Temperature: Store at 2-8°C, Argon charged

| Parameter | Limit Values | Result |
|---|------------------------------|------------------------------|
| Methanol(CH ₃ OH) | 0-0.2 (%) | 0.20 % |
| Chloride | 0-0.001 (%) | 0.00 % |
| (As)Arsenic | 0-0.0001 (%) | 0.00 % |
| Purity(Neutralization titration) | 89.5-110.5 (%) | 90.40 % |
| Sulfate(SO ₄ ²⁻) | 0-0.001 (%) | 0.00 % |
| Heavy metals | 0-0.0005 (%) | 0.00 % |
| Ignition Residue | 0-0.05 (%) | 0.01 % |
| Density (20°C) | 1.2-1.22 (g/ml) | 1.21 g/ml |
| Cyanide | 0-0.0001 (%) | 0.00 % |
| Iron(Fe) | 0-0.0005 (%) | 0.00 % |
| Optical purity | 99.5-100 (%) | 99.80 % |
| Calcium(Ca) | 0-0.0001 (%) | 0.00 % |
| Refractive index n ₂₀ /D | 1.426-1.431 | 1.43 |
| Specific Rotation [α] ₂₀ /D(c=2.5 in 1.5mol/L NaOH sol.) | -15--10 (°) | -11.20 ° |
| Mercury | 0-1 (ppm) | 0.51 ppm |
| Lead(Pb) | < 2.0 (ppm) | 1.90 ppm |
| 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".

John Su
QA & QC Manager