

**MP Biomedicals, LLC**29525 Fountain Parkway  
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## Certificate of Analysis

**Product Description:** L-(+)-Lactic Acid, free acid  
**Catalog Number:** 190228  
**Lot:** M5238**Formula:**  $C_3H_5O_3$   
**CAS #:** 79-33-4  
**Physical Description:** White Crystalline Powder**Formula Weight:** 90.08  
**Storage:** -0°C, desiccate

| Test             | Specification                           | Result               |
|------------------|-----------------------------------------|----------------------|
| Identity Test    | Passes                                  | Passes               |
| Purity           | $\geq 98\%$                             | 99.0% (titr)         |
| FTIR             | Conforms to Standard                    | Conforms to Standard |
| Melting Point    | 48 - 58°C                               | 52°C                 |
| Optical Rotation | $+2.6^\circ \pm 2^\circ$ (c=2.5, water) | $+0.67^\circ$        |
| Moisture         | $\leq 1\%$                              | 0.5% (KF)            |

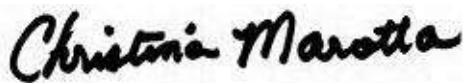
Color of Solution (20% aq soln): Colorless

Turbidity (2% aq soln): 0.3 NTU

Specific Optical Rotation (c=2.5, 1.5 mol/L NaOH):  $-13.5^\circ$ 

Sodium Content: &lt;50 mg/kg

Magnesium Content: &lt;50 mg/kg

10/22/2012 - Christina Marotta  
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