

## Certificate of Analysis

Date of Testing: 2023-01-16 14:00:23

Date of Next Testing: 2027-01-15 14:00:23

Product Name: **L-Serine**

CAS Number: 56-45-1

Specifications & Purity: 99%

Lot #: A2310205

SKU #: **S103483**

**Analysis:** **179421**

Storage Temperature: Desiccated

| Parameter                                        | Limit Values              | Result                    |
|--------------------------------------------------|---------------------------|---------------------------|
| Carbon by Elemental Analysis                     | 33.6-35 (%)               | 34.60 %                   |
| Nitrogen by Elemental Analysis                   | 13-13.6 (%)               | 13.50 %                   |
| Purity(HPLC)                                     | 99-100 (%)                | 99.41000 %                |
| Specific rotation(20°C, C = 10 in 2 M HCl, EP)   | 14.4-15.5 (°)             | 14.71000 °                |
| Appearance (S103483)                             | White to Off-White Powder | White to Off-White Powder |
| Infrared spectrum                                | Conforms to Structure     | Conforms to Structure     |
| Solubility in H2O , Colorless and clear,50 mg/mL | pass                      | Pass                      |

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

John Su  
QA & QC Manager