

## Certificate of Analysis

Date of Testing: 2024-12-30 11:31:46

Date of Next Testing: 2028-12-29 11:31:46

Product Name: **L(+)-Glutamic acid**

CAS Number: 56-86-0

Specifications & Purity:  $\geq 99\%$

Lot #: L2425373

SKU #: **G103978**

Version: **0**

Analysis #: **454534**

| Parameter                                                            | Limit Values          | Result                |
|----------------------------------------------------------------------|-----------------------|-----------------------|
| Loss on drying                                                       | 0-0.5 (%)             | 0.08 %                |
| Specific Rotation $[\alpha]_{20/D}(c=10 \text{ in } 2N \text{ HCl})$ | 30.5-32.5 (°)         | 32.00°                |
| As <sub>2</sub> O <sub>3</sub>                                       | 0-1 (ppm)             | 0.00 ppm              |
| Iron(Fe)                                                             | 0-30 (ppm)            | 0.00 ppm              |
| Purity(as dry basis)                                                 | 99-100 (%)            | 99.19 %               |
| Sulfate(SO <sub>4</sub> <sup>2-</sup> )                              | 0-300 (ppm)           | 1.32 ppm              |
| Sulfate Ash                                                          | 0-0.1 (%)             | 0.00 %                |
| Ammonia (NH <sub>4</sub> )                                           | 0-200 (ppm)           | 1.00 ppm              |
| Chloride (Cl <sup>-</sup> )                                          | 0-200 (ppm)           | 10.00 ppm             |
| Heavy metal (as Pb)                                                  | 0-10 (ppm)            | 0.00 ppm              |
| Appearance (G103978)                                                 | white powder          | White powder          |
| Infrared spectrum                                                    | Conforms to Structure | Conforms to Structure |
| Other amino acids                                                    | Not detected          | Not detected          |



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QA & QC Manager