

**CERTIFICATE OF ANALYSIS**

PRODUCT NAME: L-Serine  
 CAS NO.: 56-45-1  
 BATCH NO.: 20/MFM/2444  
 Molecular Weight: 105.09  
 Molecular Formula: C3H7NO3  
 Storage Temperature: +20°C  
 EXPIRY DATE: 18 January 2026

| TESTS                     | SPECS                                | RESULTS  |
|---------------------------|--------------------------------------|----------|
| Appearance                | White crystals or crystalline powder | Conforms |
| Assay                     | 98.5 to 101.5%                       | 99.4%    |
| Specific optical rotation | +14.0 to + 15.6°                     | + 14.2°  |
| Identification            | IR                                   | Conforms |
| Chloride                  | <= 0.05%                             | Conforms |
| Sulphate                  | <= 0.03%                             | Conforms |
| Iron (Fe)                 | <= 30 ppm                            | Conforms |
| Heavy Metals              | <= 15ppm                             | Conforms |
| Loss on Drying            | <= 0.2%                              | 0.1%     |
| Organic Impurities        | Any individual Impurity: <= 0.5%     | Conforms |
|                           | Total impurities: <= 2.0%            | Conforms |
| Pharmacopoeia             |                                      |          |
| Specifications            | USP                                  | Conforms |

\* This material is supplied for Research Use only.

Supplier: Formedium Ltd

Approved by:

Date: 10 JAN 2020

For and on behalf of  
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(Authorised Signature)