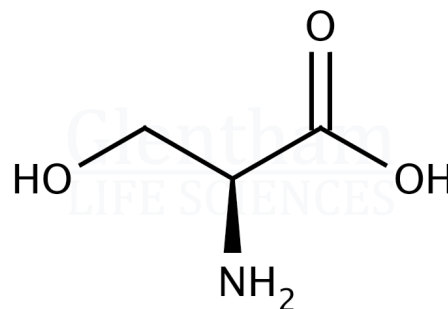


Certificate of Analysis

| | |
|-------------------|--|
| Product Name | L-Serine, GlenCell™, suitable for cell culture |
| Glenthams Code | GM7000 |
| CAS Number | 56-45-1 |
| EINECS | 200-274-3 |
| MDL Number | MFCD00064224 |
| Batch Number | 664CVA |
| Molecular Weight | 105.09 |
| Molecular Formula | C ₃ H ₇ NO ₃ |
| Storage Temp. | +20°C |



| Property | Specification | Batch 664CVA |
|---|--|----------------|
| Physical Description | White crystals or crystalline powder | White crystals |
| Identification | IR | Conforms |
| Solubility | Freely soluble in water and in formic acid, practically insoluble in ethanol | Conforms |
| Solubility (5% in water) | Clear, colourless solution | Conforms |
| Transmittance | ≥ 98.0% (5% in water, 430nm, 10mm cell) | 100.1% |
| Specific Optical Rotation | +14.4 - +15.5 ° (c=10, 2M HCl) | +15.4° |
| Chloride (Cl) | ≤ 0.02% | Conforms |
| Ammonium (NH ₄) | ≤ 0.02% | Conforms |
| Sulphate (SO ₄) | ≤ 0.02% | Conforms |
| Iron (Fe) | ≤ 10ppm | Conforms |
| Heavy Metals (as Pb) | ≤ 10ppm | ≤ 5ppm |
| Arsenic (As ₂ O ₃) | ≤ 1ppm | Conforms |
| Related Substances | To pass test | Conforms |
| Loss on Drying | ≤ 0.2% | 0.02% |
| Sulphated Ash | ≤ 0.1% | 0.0% |
| pH | 5.2 - 6.2 (10% in water) | 5.8 |
| Residual Solvents | ≤ 200ppm (Methanol) | Conforms |
| Endotoxins | ≤ 6.0EU/g | ≤ 3.0EU/g |
| Assay | 98.5 - 101.0 % | 100.1% |
| Origin | Non-animal origin | Conforms |

| | |
|-----------------------|------------|
| Specification Version | v1.0 |
| Manufacture Date | 2021-05-30 |
| Re-Test Date | 2029-01-18 |

Glenthams Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glenthams.com or contact us using the details above for the current version of this document.

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