

CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek. Certificate Number. 2317548

| | |
|---------------------------|--|
| Catalogue Number | 13265 |
| Lot Number | A0320778 |
| Description | DL-Serine,99% |
| CAS Number | 302-84-1 |
| Quality Test/Release Date | 30/Nov/2024 |
| Suggested retest date | 30/Nov/2029 |
| Country of Origin | CHINA |
| Declaration of Origin | porcine |
| BSE/TSE | The product is manufactured from porcine gelatine and poultry keratine |

| Result Name | Units | Specifications | Test Value |
|----------------------|-------|--|--------------------------------------|
| Appearance | | white crystalline powder or crystals | white crystalline powder |
| Infrared spectrum | | authentic | authentic |
| Titration Total base | % | 98.5 to 101.5 | 98.7 |
| Other amino acids | % | =<0.5 (TLC) | =<0.5 (TLC) |
| Loss on drying | % | =<0.3 (105°C, 3 hrs) | 0.11 (105°C, 3 hrs) |
| Heavy metals (as Pb) | ppm | =<10 | =<10 |
| Sulfated ash | % | =<0.1 | 0.07 |
| UV transmittance | % | >=95 (c=10, 2 N HCl, 430 nm) 1 cm cell | 98 (c=10, 2 N HCl, 430 nm) 1 cm cell |
| Trace analysis | | Type: Fe measure =< 10 ppm | Type: Fe measure =< 10 ppm |
| Trace analysis | | Type: Cl measure =< 200 ppm | Type: Cl measure =< 200 ppm |
| Trace analysis | | Type: SO4 measure =< 500 ppm | Type: SO4 measure =< 200 ppm |
| Trace analysis | | Type: NH4 measure =< 200 ppm | Type: NH4 measure =< 200 ppm |



Geert Torfs
Supervisor, QC

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.