

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 | 22691 |
| Lot Number | A0467335 |
| Description | D-Tyrosine,98% |
| CAS Number | 556-02-5 |
| Quality Test/Release Date | 20/Nov/2024 |
| Suggested retest date | 20/Nov/2029 |
| Country of Origin | SWITZERLAND |
| Declaration of Origin | synthetic |
| BSE/TSE | synthetically made product |

| Result Name | Units | Specifications | Test Value |
|---------------------------|-------|--|--|
| Appearance (Color) | | White to off-white | White |
| Appearance (Form) | | Powder or crystals | Powder |
| Infrared spectrum | | Conforms | Conforms |
| Titration with HClO4 | % | 97.5 to 102.5 | 100.0 |
| Loss on drying | % | =<0.5 (105°C, 3 h) | 0.06 (105°C, 3 h) |
| Residue after ignition | % | =<0.1 | =<0.001 |
| Specific optical rotation | nm | +10° to +12° (20°C, 589 (c=5, 1 M HCl, after 3 h) | +11.8° (20°C, 589) (c=5, 1 M HCl, after 3 h) |
| Solubility | | (5 % in 1 M HCl) clear colorless to almost colorless | (5 % in 1 M HCl) clear colorless |

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.