

## 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	13893
Lot Number	A0475697
Description	L-Threonine,98%
CAS Number	72-19-5
Quality Test/Release Date	04/Sep/2025
Suggested retest date	04/Sep/2028
Country of Origin	CHINA
Declaration of Origin	plant
BSE/TSE	The product is made by fermentation of starch

Result Name	Units	Specifications	Test Value
Appearance (Color)		White to off-white	White
Appearance (Form)		Crystalline powder or glistening flakes	Crystalline powder
Infrared spectrum		Conforms	Conforms
Titration with HClO <sub>4</sub>	%	97.5 to 102.5 (On dried substance)	99.2 (On dried substance)
Loss on drying	%	=<0.5 (1 g, 105°C, 3 hrs)	0.1 (1 g, 105°C, 3 hrs)
Heavy metals (as Pb)	ppm	=<10	=<10
Sulfated ash	%	=<0.1	0.07
Specific optical rotation		-27.6° to -29.0° (20°C, 589 nm) (c=6, H <sub>2</sub> O)	-28.3° (20°C, 589 nm) (c=6, H <sub>2</sub> O)
Chloride (Cl)	ppm	=<200	=<200
Sulfate (SO <sub>4</sub> )	ppm	=<300	=<200
Solubility		(2.5 % in water) Clear colorless	(2.5 % in water) 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.