

## 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	16135
Lot Number	A0467017
Description	D(-)-Fructose,99%
CAS Number	57-48-7
Quality Test/Release Date	01/May/2026
Suggested retest date	01/May/2029
Country of Origin	FINLAND
Declaration of Origin	plant
BSE/TSE	extracted from sugar beet and sugar cane

Result Name	Units	Specifications	Test Value
Appearance (Color)		White	White
Appearance (Form)		Crystalline powder or crystals	Crystalline powder
Infrared spectrum		Conforms	Conforms
HPLC	%	$\geq 98.5$	99.9
Water	%	$\leq 0.5$ (K.F.)	0.2 (K.F.)
Heavy metals (as Pb)	ppm	$\leq 10$	$\leq 0.1$
Sulfated ash	%	$\leq 0.1$	0.02
Specific optical rotation		$-91.0^\circ$ to $-93.5^\circ$ (20°C, 589 nm) (c=10, H <sub>2</sub> O/NH <sub>3</sub> )	$-92.7^\circ$ (20°C, 589 nm) (c=10, H <sub>2</sub> O/NH <sub>3</sub> )
Specific optical rotation		After 30 min, On dry substance	After 30 min, On dry substance
Chloride (Cl)	ppm	$\leq 50$	$\leq 40$
Sulfate (SO <sub>4</sub> )	ppm	$\leq 50$	$\leq 50$
Solubility		(2.5 gram in 10 ml water) Clear and colourless	(2.5 gram in 10 ml water) Clear and colourless

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.