

**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

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Catalogue Number	21723
Lot Number	A0443492
Description	(R)-(-)-sec-Butanol,99%
CAS Number	14898-79-4
Quality Test/Release Date	26/Dec/2024
Suggested retest date	26/Dec/2029
Country of Origin	GERMANY
Declaration of Origin	synthetic

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Result Name	Units	Specifications	Test Value
Appearance (Color)		Clear colorless	Clear colorless
Appearance (Form)		Liquid	Liquid
Infrared spectrum		Conforms	Conforms
GC	%	>=98.5	99.8
Specific optical rotation	nm	-12° to -14° (20°C, 589 (neat)	-14° (20°C, 589) (neat)
Refractive index		1.3960 to 1.3980 (20°C, 589 nm)	1.3971 (20°C, 589 nm)

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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.