

## CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by TUV SUD America Inc.  
 Certificate Number. 951001163

Catalogue Number	039198
Lot Number	Z04L701
Description	1-Chlorobutane, HPLC Grade, 99.5+%
CAS Number	109-69-3
Quality Test/Release Date	30/Oct/2025
Suggested retest date	30/Oct/2030
Country of Origin	Germany
Declaration of Origin	Synthetic
BSE/TSE	Not directly derived from or manufactured with any animal byproducts in any way (including but not limited to fermentation or nutrient broth, catalysts, enzymes).

Result Name	Units	Specifications	Test Value
Assay (GC)	%	≥99.5%	99.98
Appearance (Color)		Colorless	Colorless
Form		clear liquid	Clear liquid
Water Content (Karl Fischer Titration)	%	≤0.02%	0.004
Optical Absorbance at	AU	220nm: ≤1.00 AU	0.74
Optical Absorbance at	AU	225nm: ≤0.50 AU	0.21
Optical Absorbance at	AU	250nm: ≤0.03 AU	0.01
Optical Absorbance at	AU	300nm: ≤0.005 AU	<0.001
Optical Absorbance at	AU	400nm: ≤0.005 AU	<0.001
Residue on Evaporation	ppm	≤1ppm	<0.1



Derek Roy  
 Quality Manager, LCD

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.