

## CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek Global Certificate Number. CERT-0120633

Catalogue Number	A456
Lot Number	253507
Description	METHANOL, OPTIMA-LCMS GRADE
CAS Number	67-56-1
Quality Test/Release Date	09/Jun/2025
Suggested retest date	08/Jun/2030
Country of Origin	United States
Declaration of Origin	Organic - synthetic
BSE/TSE	No materials derived from animals or humans were used to make or process this chemical, and the equipment used to process this chemical is not used to process any material derived from animals or humans.

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
ASSAY	%	>= 99.9	>99.9
COLOR	APHA	<= 10	<5
EVAPORATION RESIDUE	ppm	<= 1	<1
IDENTIFICATION	PASS/FAIL	IN PASS TEST	PASS TEST
IONIC IMPURITY - ALUMINUM (Al)	ppb	<= 10	<1
IONIC IMPURITY - BARIUM (Ba)	ppb	<= 10	<1
IONIC IMPURITY - CADMIUM (Cd)	ppb	<= 10	<1
IONIC IMPURITY - CALCIUM (Ca)	ppb	<= 50	<1
IONIC IMPURITY - CHROMIUM (Cr)	ppb	<= 10	<1
IONIC IMPURITY - COBALT (Co)	ppb	<= 10	<1
IONIC IMPURITY - COPPER (Cu)	ppb	<= 10	<1
IONIC IMPURITY - IRON (Fe)	ppb	<= 10	<1
IONIC IMPURITY - LEAD (Pb)	ppb	<= 10	<1
IONIC IMPURITY - MAGNESIUM (Mg)	ppb	<= 10	<1
IONIC IMPURITY - MANGANESE (Mn)	ppb	<= 10	<1
IONIC IMPURITY - NICKEL (Ni)	ppb	<= 10	<1
IONIC IMPURITY - POTASSIUM (K)	ppb	<= 10	<1
IONIC IMPURITY - SILVER (Ag)	ppb	<= 10	<1
IONIC IMPURITY - SODIUM (Na)	ppb	<= 50	3
IONIC IMPURITY - TIN (Sn)	ppb	<= 10	<1
IONIC IMPURITY - ZINC (Zn)	ppb	<= 10	<1
LC GRADIENT TEST WITH PDA (200-400 NM)	mAU	<= 2	<2
LCMS SUITABILITY - POS. MODE (AS PROPAZINE)	ppb	<= 100	<100
LCMS SUITABILITY-NEG.MODE (AS CHLORAMPHENICOL)	ppb	<= 200	<200
OPTICAL ABS AT 210 NM	ABS. UNITS	<= 0.5	0.3
OPTICAL ABS AT 214 NM	ABS. UNITS	<= 0.4	0.2
OPTICAL ABS AT 220 NM	ABS. UNITS	<= 0.2	0.2
OPTICAL ABS AT 230 NM	ABS. UNITS	<= 0.1	0.1
OPTICAL ABS AT 254 NM	ABS. UNITS	<= 0.01	0.01
OPTICAL ABS AT 260 NM	ABS. UNITS	<= 0.005	0.005
OPTICAL ABS AT 280 NM	ABS. UNITS	<= 0.005	0.002
TITRATABLE ACID	MEQ/G	<= 0.0003	0.0002
TITRATABLE BASE	MEQ/G	<= 0.0002	<0.0001
WATER (H2O)	%	<= 0.02	0.01

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.

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**Additional Information** HPLC/UHPLC-UV Gradient Suitability: Peak Height with PDA (200-400 nm)  $\leq$  2 mAU



Harout Sahagian  
QC Manager

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 use or further manufacturing. 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.