

## 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	A117
Lot Number	253115
Description	FORMIC ACID, OPTIMA LC/MS GRADE
CAS Number	64-18-6
Quality Test/Release Date	03/Jul/2025
Suggested retest date	31/Mar/2028
Country of Origin	Germany
Declaration of Origin	Synthetic

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless fuming liquid
ASSAY	%	>= 99.0	99.7
CHLORIDE	ppm	<= 5	<5
COLOR	APHA	<= 10	<5
EVAPORATION RESIDUE	ppm	<= 1	<1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IONIC IMPURITY - ALUMINUM (Al)	ppb	<= 20	<1
IONIC IMPURITY - CALCIUM (Ca)	ppb	<= 50	<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	<= 20	<1
IONIC IMPURITY - SILVER (Ag)	ppb	<= 10	<1
IONIC IMPURITY - SODIUM (Na)	ppb	<= 50	<1
IONIC IMPURITY - ZINC (Zn)	ppb	<= 20	<1
LC-MS GRADIENT SUITABILITY	PASS/FAIL	= PASS TEST	PASS TEST
LC-UV GRADIENT SUITABILITY	PASS/FAIL	= PASS TEST	PASS TEST
LCMS SUITABILITY - POS. MODE (AS PROPAZINE)	ppb	<= 50	<50
OPTICAL ABS AT 210 NM AT 0.1%	ABS. UNITS	<= 1.25	1.18
OPTICAL ABS AT 220 NM AT 0.1%	ABS. UNITS	<= 0.85	0.79
OPTICAL ABS AT 230 NM AT 0.1%	ABS. UNITS	<= 0.55	0.34
OPTICAL ABS AT 254 NM AT 0.1%	ABS. UNITS	<= 0.01	<0.01
SULFATE (SO4)	ppm	<= 50	<50
SULFITE	ppm	<= 20	<20

**Additional Information** Metals tested as 0.1 % (wt/wt) solution in 2 % Nitric acid; LC-UV Gradient Suitability and LC-MS is tested at a 0.1 % aqueous solution; Protease is tested as a 0.1 % solution in water.



Matthew Micek  
QC Supervisor

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.

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.

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