Fisher Scientific L.L.C. US
755 US Highway
Route 202, Bridgewater,
NJ 08807, United States of America

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	A409
Lot Number	252667
Description	Ethanol, Absolute (200 Proof) USP/EP/ACS Certified
CAS Number	64-17-5
Quality Test/Release Date	17/Jun/2025
Suggested retest date	16/Jun/2030
Country of Origin	United States
Declaration of Origin	Grain Derived
BSE/TSE	This is not derived, nor does it come in contact with, any materials derived from bovine or other animal sources.

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless liquid
EP Grade - ABSORBANCE AT 240 nm		<= 0.40	0.05
EP Grade - ABSORBANCE AT 270 nm to 340 nm		<= 0.10	<0.10
EP Grade - ABSORBANCE AT250 nm to 260 nm		<= 0.30	<0.30
EP Grade - ACETALDEHYDE AND ACETAL IMPURITIES	ppm	<= 10	<10
EP Grade - ACIDITY OR ALKALINTY	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - APPEARANCE	CLEAR_COLORLESS	= CLEAR AND COLORLESS	CLEAR AND COLORLESS
EP Grade - ASSAY BY RELATIVE DENSITY@ 20 C m/m	%	>= 99.2	>99.2
EP Grade - ASSAY BY RELATIVE DENSITY@ 20 C v/v	%	>= 99.5	>99.5
EP Grade - BENZENE	ppm	<= 2	<2
EP Grade - EP SUM OF ALL IMPURITY	ppm	<= 300	<300
EP Grade - EPSOLUBILITY	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - IDENTIFICATION (ALL LISTED)	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - IDENTIFICATION (TEST C)	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - IDENTIFICATION (TEST D)	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - IDENTIFICATION INFRARED SPECTROPHOTOMETRY (TEST B)	CONFORMS	= CONFORMS	CONFORMS
EP Grade - IDENTIFICATION RELATIVE DENSITY (TEST A)	PASS/FAIL	= PASS TEST	PASS TEST
EP Grade - METHANOL	ppm	<= 200	<200
EP Grade - RESIDUE EVAPORATION	ppm	<= 25	<25
EP Grade - The spectrum steadily descending curve, no peak or shoulders	PASS/FAIL	= PASS TEST	PASS TEST
N/A - ASSAY BY GC	%	>= 99.5	>99.5
N/A - COLOR	A.P.H.A.	<= 10	<5
N/A - IMPURITIES AS ACETONE & IPA	PASS/FAIL	= PASS TEST	PASS TEST
N/A - METHANOL	%	<= 0.1	<0.1
N/A - RESIDUE	%	<= 0.001	<0.001
N/A - SOLUBILITY	PASS/FAIL	= PASS TEST	PASS TEST
N/A - SUBSTANCES DARKENED BY H2SO4	PASS/FAIL	= PASS TEST	PASS TEST
N/A - SUBSTANCES REDUCING KMNO4	PASS/FAIL	= PASS TEST	PASS TEST
N/A - TITRATABLE ACID	mEq /g	<= 0.0005	0.0003

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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N/A - TITRATABLE BASE	mEq/g	<= 0.0002	0.0001
N/A - WATER (H2O)	%	<= 0.2	<0.2
USP Grade - ACETALDEHYDE AND ACETAL IMPURITIES	µl/l	<= 10	<10
USP Grade - ACIDITY OR ALKALINITY	PASS/FAIL	= PASS TEST	PASS TEST
USP Grade - ASSAY (BY SPECIFIC GRAVITY @15.56 C) BY VOLUMN	%	>= 99.5	>99.5
USP Grade - ASSAY (BY SPECIFIC GRAVITY @15.56 C) BY WEIGHT	%	>= 99.2	>99.5
USP Grade - BENZENE IMPURITRES	µl/l	<= 2	<2
USP Grade - CLARITY OF SOLUTION	PASS/FAIL	= PASS TEST	PASS TEST
USP Grade - COLOR OF SOLUTION	PASS/FAIL	= PASS TEST	PASS TEST
USP Grade - IDENTIFICATION (ALL LISTED)	PASS/FAIL	= PASS TEST	PASS TEST
USP Grade - IDENTIFICATION A	Meets requirements	= MEETS REQUIREMENTS	MEETS REQUIREMENTS
USP Grade - IDENTIFICATION B	CONFORMS	= CONFORMS TO REF	CONFORMS TO REF
USP Grade - IDENTIFICATION C, LIMIT OF METHANOL	µl/l	<= 200	<200
USP Grade - METHANOL IMPURITIES	µl/l	<= 200	<200
USP Grade - NON-VOLATILE RESIDUE	MG	<= 2.5	<2.5
USP Grade - OPTICAL ABS AT 240 nm		<= 0.40	0.05
USP Grade - OPTICAL ABS AT 250 TO 260 nm		<= 0.30	<0.30
USP Grade - OPTICAL ABS AT 270 TO 340 nm		<= 0.10	<0.10
USP Grade - SPECIFIC GRAVITY @ 15.56 C		<= 0.7962	0.7948
USP Grade - The spectrum steadily descending curve, no peak or shoulders	PASS/FAIL	= PASS TEST	PASS TEST
USP Grade - USP SUM OF ALL IMPURITY	µl/l	<= 300	<300

Matthew Micek
QC Supervisior

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