

Certificate of Analysis

 12FL, Suseo Office Building,
 281, Gwangpyeong-ro,
 Gangnam-gu, Seoul 06349,
 Korea
 Tel. +82-2-2023-0600
 Fax. +82-2-6196-5501,2

 Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by ICR
 Certificate Number CERT – QI113224

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	A452	Quality Test / Release Date	2024-12-23
Lot Number	OCN214		
Description	METHANOL, HPLC GRADE		
Country of Origin	South Korea	Suggested Retest Date	2027-12-22
Chemical Origin	Organic - synthetic		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	CLEAR COLORLESS LIQUID
ASSAY	%	>=99.9	99.9
CARBONYL COMPOUNDS	%	<=0.001	<0.001
COLOR	APHA	<=5	2
EVAPORATION RESIDUE	ppm	<=3	<1
FLUORESCENCE BACKGROUND		= PASS TEST	PASS TEST
IDENTIFICATION		= PASS TEST	PASS TEST
LC GRADIENT SUITABILITY		= PASS TEST	PASS TEST
OPTICAL ABSORBANCE 205 nm	ABSORBANCE UNITS	<=1.00	0.69
OPTICAL ABSORBANCE 220 nm	ABSORBANCE UNITS	<=0.30	0.16
OPTICAL ABSORBANCE 230 nm	ABSORBANCE UNITS	<=0.15	0.07
OPTICAL ABSORBANCE 254 nm	ABSORBANCE UNITS	<=0.025	0.01
REFRACTIVE INDEX @ 25 DEG C		Inclusive Between 1.3260 - 1.3300	1.327
SOLUBILITY IN WATER		= PASS TEST	PASS TEST
SUBSTANCES DARKENED BY H2SO4		= PASS TEST	PASS TEST
SUBSTANCES REDUCING KMNO4		= PASS TEST	PASS TEST
TITRATABLE ACID	mEq/g	<= 0.0003	0.0001
TITRATABLE BASE	mEq/g	<= 0.0002	0.00003
WATER (H2O)	%	<= 0.1	0.009



Guseon.Jeong - Quality Control Supervisor

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (82)-2-2023-0600.

*Based on suggested storage condition.