

### CERTIFICATE OF ANALYSIS

<b>Product Name</b>	METHANOL
<b>Grade</b>	Meets GENERAL USE HPLC-UV/ CS/USP/NF Grade Monographs
<b>Catalog #</b>	33900HPLC
<b>Lot #</b>	C18F19009
<b>Date of Manufacture:</b>	06/19/18
<b>Recommended Retest Date:</b>	Five Years from Date of Manufacture

TEST	MONO GRAPH	SPECIFICATION	RESULT
Assay (corrected for water)	ACS	99.8% min	99.99%
Assay	NF	NLT 99.5%	100.00%
Appearance	ACS+	To Pass Test	Pass
Identification A (Infrared Absorption)	NF	To Pass Test	Pass
Identification B (GC Analysis)	NF	To Pass Test	Pass
Acidity	NF <sup>+</sup>	NMT 0.45mL 0.020N NaOH required	0.20 mL
Alkalinity (as NH <sub>4</sub> )	NF <sup>+</sup>	NMT 0.20mL 0.020N H <sub>2</sub> SO <sub>4</sub> required (3 ppm max)	0.05 mL
Titration Acid	ACS <sup>+</sup>	0.0003 meq/g max.	0.0002 meq/g
Titration Base	ACS <sup>+</sup>	0.0002 meq/g max.	< 0.0001 meq/g
Readily Carbonizable Substances	NF <sup>+</sup>	To Pass Test	Pass
Carbonyl Compounds	ACS	Acetone 0.001% max Formaldehyde 0.001% max Acetaldehyde 0.001% max	None Detected < 0.001% < 0.001%
Acetone and Aldehydes (as Acetone)	NF <sup>+</sup>	NMT 0.003%	None Detected
Readily Oxidizable Substances	NF <sup>+</sup>	To Pass Test	Pass
Non -Volatile Residue	NF <sup>+</sup>	NMT 2mg (0.001% w/w)	0 mg
Residue on Evaporation	ACS <sup>+</sup>	0.001% max	0.000%
Ultraviolet absorption	ACS	205nm 1.00 max.	0.72
		210nm 0.80 max.	0.37
		220nm 0.40 max.	0.17
		230nm 0.20 max.	0.08
		240nm 0.10 max.	0.03
		260nm 0.04 max.	0.01
		280nm-400 nm 0.01 max.	0.00
Substances Reducing Permanganate	ACS <sup>+</sup>	To Pass Test	Pass
Substances Darkened by Sulfuric Acid	ACS <sup>+</sup>	To Pass Test	Pass

TEST	MONO GRAPH	SPECIFICATION	RESULT
Solubility in Water	ACS <sup>+</sup>	To Pass Test	Pass
Color (APHA)	ACS	10 max	1
Water	EP/BP	NMT 0.1%	0.01%

<sup>+</sup>This test is performed quarterly

#### Certification and Compliance Statements

This lot of Methanol complies with all of the current requirements listed in the United States Pharmacopeia, National Formulary and American Chemical Society monographs

This product is manufactured for Routine HPLC Analysis and meets the requirements for General Use HPLC Grade, ACS Monographs. This product is not intended for GC or critical HPLC analysis. See Distilled Grade for those applications.

No chemicals whatsoever are used as solvents at any point in the manufacture, processing or packaging of Methanol. Only Class 2 and Class 3 residual solvents may appear as impurities / related substances / low level contaminants in Methanol. Concentration of Class 2 Option 1 and Class 3 residual solvents is below limits in the current USP/NF General Chapter <467>.

This product is not derived, nor does it come in contact with, any materials derived from bovine or other animal sources.

This product is for further commercial manufacturing, laboratory or research use, and may be used as an excipient or a process solvent for pharmaceutical purposes. It is not intended for use as an active ingredient in drug manufacturing nor as a medical device or disinfectant. Appropriate/legal use of this product is the responsibility of the user.

Approved by: K. Ryan, Quality Control Chemist

Date of Approval: 06/20/2018

