



## CERTIFICATE OF ANALYSIS

Product Name	Isopropyl Alcohol 99%
Grade	ACS/HPLC-UV Grade
Catalog #	231HPLC99
Item #	100913
Batch #	220412-B021830
Date of Manufacture:	03/29/2022
Recommended Retest Date:	03/28/2027
Customer PO #	P22892/1
Packaging Type	Case Poly Fluor 4x1 Gal

TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
Packaging Site	Internal	Greenfield Global USA Inc. 58 Vale Road, Brookfield, CT 06804 or 1101 Isaac Shelby Drive, Shelbyville, KY 40065	Brookfield CT	N/A
Carbonyl Compounds - Acetone	ACS	0.002% max	0.000	%
Assay (corrected for water)	ACS	99.5% min	99.93	%
Color, APHA	ACS	10 max	1	N/A
Carbonyl Compounds - Propionaldehyde	ACS	0.002% max	LT 0.002%	N/A
Residue after Evaporation	ACS*	0.001% max	0.000	%
Solubility in water	ACS*	To Pass Test	Pass	N/A
Titration Acid or Base	ACS*	0.0001 meq/g	0.0001	meq/g
Water, wt%	ACS	NMT 0.2%	0.04	%
Absorbance	HPLC	To Pass Test	Pass	N/A
Gradient Analysis @254 nm	HPLC	To Pass Test	Pass	N/A
Gradient Elution	HPLC	To Pass Test	Pass	N/A
Liquid Chromatography	HPLC	To Pass Test	Pass	N/A
UV Absorbance @210nm	HPLC	1.0 max.	0.33	N/A
UV Absorbance @220nm	HPLC	0.40 max.	0.15	N/A



## CERTIFICATE OF ANALYSIS

TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
UV Absorbance @230nm	HPLC	0.20 max.	0.08	N/A
UV Absorbance @245nm	HPLC	0.08 max.	0.02	N/A
UV Absorbance @260nm	HPLC	0.04 max.	0.01	N/A
UV Absorbance @275nm	HPLC	0.03 max.	0.00	N/A
UV Absorbance @300nm	HPLC	0.02 max.	0.00	N/A
UV Absorbance @330nm - 400nm	HPLC	0.01 max.	0.00	N/A
Limit of Volatile Impurities - 2-Butanol	USP	NMT 0.1%	LT 0.1%	N/A
Limit of Volatile Impurities - Acetone	USP	NMT 0.1%	None Detected	N/A
Acidity	USP*	NMT 0.70 ml of 0.020N NaOH is required	0.4	ml
Assay (corrected for water)	USP	99.0% min	99.93	%
Limit of Volatile Impurities - Diethyl Ether	USP	NMT 0.1%	LT 0.1%	N/A
Limit of Volatile Impurities - Diisopropyl Ether	USP	NMT 0.1%	LT 0.1%	N/A
Identification B	USP	To Pass Test	Pass	N/A
Identification A - Infrared Spectroscopy	USP	To Pass Test	Pass	N/A
Identification C - Limit of Methanol	USP	NMT 0.02%	Pass	N/A
Limit of Volatile Impurities - Individual unspecified	USP	NMT 0.1%	LT 0.1%	N/A
Limit of Volatile Impurities - Methanol	USP	NMT 0.02%	LT 0.02%	N/A
Limit of Volatile Impurities - n-Propyl Alcohol	USP	NMT 0.1%	LT 0.1%	N/A
Limit of Nonvolatile Residue	USP*	NMT 2.5 mg (0.005%)	0.0	mg
Refractive Index @ 20oC	USP	1.376-1.378	1.377	N/A



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TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
Specific Gravity	USP	0.783 - 0.787 @25°C	0.783	N/A
Limit of Volatile Impurities - Total	USP	NMT 1.0%	LT 0.1%	N/A
Water Determination	USP	NMT 0.5%	0.04	%

### Certification and Compliance Statements

This lot of Isopropyl Alcohol complies with all of the current requirements listed in the United States Pharmacopeia, 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 Isopropyl Alcohol. Only Class 2 and Class 3 residual solvents may appear as impurities / related substances / low level contaminants in IPA. Concentration of Class 2 Option 1 and Class 3 residual solvents is below limits in the current USP/NF General Chapter <467> and ICH Q3C Impurities: Residual Solvents.

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 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.

\* This test is performed quarterly

**This document was electronically signed by Gabriella Scoca on 4/19/2022 3:06:32 PM to indicate Quality Assurance Approval and to release this batch.**