



CERTIFICATE OF ANALYSIS

Product Name	Ethyl Alcohol 200 Proof Absolute Grain
Grade	ACS/USP Grade
Catalog #	111000200
Item #	100129
Batch #	220627-B026949
Date of Manufacture:	06/15/2022
Recommended Retest Date:	06/14/2025
Customer PO #	P22689
Packaging Type	Case Poly 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	Shelbyville KY	N/A
Assay (by GC, corrected for water)	ACS	NLT 99.5%	99.98	%
Water (wt%)	ACS	0.2%, max	0.02	%
Proof	27CFR 30.23	Lot Analysis	200.0	N/A
Assay (by specific gravity@15.56°C)	USP	NLT 99.5%	99.98	%
Specific Gravity	USP	NMT 0.7962 @ 15.56°C	0.7937	N/A
Acetone/Isopropyl Alcohol	ACS	To Pass Test	Pass	N/A
Color (APHA)	ACS	10 max	1	N/A
Methanol	ACS	0.1% max	Pass	N/A
Residue after Evaporation	ACS	0.001% , max	0.001	%
Solubility in Water	ACS	To Pass Test	Pass	N/A
Substances Darkened by Sulfuric Acid	ACS	To Pass Test	Pass	N/A
Substances Reducing Permanganate	ACS	To Pass Test	Pass	N/A



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Titration Acid	ACS	0.0005 meq/g max.	0.0002	meq/g
Titration Base	ACS	0.0002 meq/g max.	0.0001	meq/g
Acidity or Alkalinity	USP	The solution is pink (30µg/g, expressed as acetic acid)	Pass	N/A
Clarity of Solution	USP	Sample solution A and Sample solution B show the same clarity as that of water, or their opalescence is not more pronounced than that of the Standard suspension A.	Pass	N/A
Color of Solution	USP	The Sample solution has the appearance of water or is not more intensely colored than the Standard solution	Pass	N/A
Identification Test A (Specific Gravity)	USP	It meets the requirements of the test for specific gravity	Pass	N/A
Identification Test B (Infrared Spectroscopy)	USP	Conforms to IR Spectra	Pass	N/A
Identification Test C (Limit of Methanol)	USP	NMT 200 µL/L (200ppm) of Methanol	Pass	N/A
Limit of Nonvolatile Residue	USP	NMT 2.5 mg	0.6	mg
Organic Impurities - Acetaldehyde and Acetal	USP	NMT 10µL/L, expressed as acetaldehyde	0	µL/L
Organic Impurities - Benzene	USP	NMT 2µL/L	0	µL/L
Organic Impurities - Methanol	USP	NMT 200µL/L	1	µL/L
Organic Impurities - Sum of all other impurities	USP	NMT 300µL/L	0	µL/L
UV Absorbance	USP	NMT 0.40 at 240 nm	0.26	N/A
UV Absorbance	USP	NMT 0.30 between 250 and 260 nm	0.10	N/A
UV Absorbance	USP	NMT 0.10 between 270 and 340 nm	0.02	N/A



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TEST	MONO-GRAPH	SPECIFICATION	RESULT	UNITS
UV Absorbance	USP	The spectrum shows a steadily descending curve with no observable peaks or shoulders	Pass	N/A

Certification and Compliance Statements

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.

No chemicals whatsoever are used as solvents at any point in the manufacture, processing or packaging of ethyl alcohol. Only Class 2 and Class 3 residual solvents may appear as impurities / related substances / low level contaminants in Ethanol.

Concentration of Class 2 Option 1 and Class 3 residual solvents is below limits in the current USP/NF General Chapter <467>.

This lot of Anhydrous Ethyl Alcohol complies with all of the current requirements listed in the United States Pharmacopeia, and American Chemical Society monographs

Recommended retest period excludes UV Absorbance for pure Ethyl Alcohol unless packaged in glass or UV protected drums (see shelf life statement).

This document was electronically signed by Alice Storm on 6/20/2022 7:26:10 AM to indicate Quality Assurance Approval and to release this batch.