

## PRODUCT SPECIFICATION SHEET

### Ethyl Alcohol 190 Proof (95%), Pure, Non-Denatured Meets HPLC-UV Monographs Grain Derived Ethanol

Test	Specification	Typical Results
Assay	NLT 95.0% v/v 94.9-96.0% v/v	95.01%
Assay (by specific gravity@15.56 °C)	NLT 99.5%	99.98%
Proof	Lot Analysis	190.0
Solubility in Water	To Pass Test	Pass
Acetone/IPA	To Pass Test	Pass
Methanol	NMT 0.1%	< 0.001%
Substances Darkened by Sulfuric Acid	To Pass Test	Pass
Substances Reducing Permanganate	To Pass Test	Pass
Color (APHA)	NMT 10	< 10
Titration Acid	NMT 0.0005 meq/g	<0.0003 meq/g
Titration Base	NMT 0.0002 meq/g	<0.0001 meq/g
Acidity or Alkalinity	The solution is pink (30ppm, expressed as acetic acid)	Pass
Identification Test A (Specific Gravity)	It meets the requirements of the test for Specific Gravity	Pass
Specific Gravity @ 15.56 °C	0.812 - 0.816 @ 15.56 °C	0.8158
Identification Test B (Infrared Spectroscopy)	Conforms to Infrared Spectra (Neat)	Pass
Identification C (Limit of Methanol)	NMT 200 µL/L (200ppm) of Methanol	Pass
Clarity of Solution	Sample Solution A & B show the same clarity as that of water, or their opalescence is not more pronounced than that of Standard Suspension A	Pass
Color of Solution	The Sample solution has the appearance of water or is not more intensely colored than the Standard solution	Pass
Ultraviolet absorption	NMT 0.40 at 240 nm NMT 0.30 between 250 nm and 260 nm NMT 0.10 between 270 nm and 340 nm The spectrum shows a steadily descending curve with no observable peaks or shoulders	0.21 0.08 0.02 Pass
Limit of nonvolatile residue	The weight of the residue does not exceed 2.5mg	<1.0mg
Nonvolatile Residue	NMT 0.001%	< 0.001%
Organic Impurities	Methanol NMT 200ppm Acetaldehyde and Acetal NMT 10ppm Benzene NMT 2ppm Sum of all other impurities NMT 300ppm	<5 ppm <1 ppm <1 ppm <20 ppm