

**CERTIFICATE OF ANALYSIS**

**Product Name** ISOPROPYL ALCOHOL, 99%, HPLC/UV  
**Grade** Meets ACS HPLC/UV Monograph  
**Catalog #** 231HPLC99  
**Lot #** C21D05007  
**Date of Manufacture:** 04/05/21  
**Recommended Retest Date:** Five Years from Date of Manufacture

| TEST                                   | MONO<br>GRAPH    | SPECIFICATION                          | RESULT       |
|--|------------------|--|--------------|
| Assay (corrected for water)            | USP              | 99.0% min                              | 99.96%       |
| Assay (corrected for water)            | ACS              | 99.5% min                              |              |
| Solubility in water                    | ACS <sup>+</sup> | To Pass Test                           | Pass         |
| Appearance                             | ACS <sup>+</sup> | Clear, colorless liquid                | Pass         |
| Color, APHA                            | ACS              | 10 max                                 | 1            |
| Limit of Nonvolatile Residue           | USP <sup>+</sup> | NMT 2.5 mg (0.005%)                    | 0.0 mg       |
| Residue after Evaporation              | ACS <sup>+</sup> | 0.001% max                             | 0.000%       |
| Specific Gravity                       | USP              | 0.783 - 0.787 @25°C                    | 0.783        |
| Identification A - Infrared Absorption | USP              | To Pass Test                           | Pass         |
| Identification B                       | USP              | To Pass Test                           | Pass         |
| Refractive Index @ 20°C                | USP              | 1.376-1.378                            | 1.377        |
| Acidity                                | USP <sup>+</sup> | NMT 0.70 ml of 0.020N NaOH is required | 0.50 mL      |
| Titration Acid or Base                 | ACS <sup>+</sup> | 0.0001 meq/g                           | 0.0001 meq/g |
| Carbonyl Compounds                     | ACS              | Propionaldehyde 0.002% max             | < 0.002%     |
|  |                  | Acetone 0.002% max                     | < 0.002%     |
| Limit of Volatile Impurities           | USP              | Diethyl Ether NMT 0.1%                 | < 0.1%       |
|  |                  | Acetone NMT 0.1%                       | < 0.1%       |
|  |                  | Diisopropyl Ether NMT 0.1%             | < 0.1%       |
|  |                  | n-Propyl Alcohol NMT 0.1%              | < 0.1%       |
|  |                  | 2-Butanol NMT 0.1%                     | < 0.1%       |
|  |                  | Total NMT 1.0%                         | < 0.1%       |
| Water, wt%                             | ACS              | NMT 0.2%                               | 0.03%        |
| Water Determination                    | USP              | NMT 0.5%                               |              |



| TEST   | MONO GRAPH | SPECIFICATION   | RESULT                       |
|--|------------|-----------------|------------------------------|
| UV Absorbance  | ACS        | 210 nm          | 1.0 max. 0.28                |
|  |            | 220 nm          | 0.40 max. 0.12               |
|  |            | 230 nm          | 0.20 max. 0.06               |
|  |            | 245 nm          | 0.08 max. 0.02               |
|  |            | 260 nm          | 0.04 max. 0.00               |
|  |            | 275 nm          | 0.03 max. 0.00               |
|  |            | 300 nm          | 0.02 max. 0.00               |
|  |            | 330 nm - 400 nm | 0.01 max. 0.00               |
| Liquid Chromatography<br>Absorbance<br>Gradient Elution<br>Gradient Analysis @254 nm | ACS        | To Pass Test(s) | Pass<br>Pass<br>Pass<br>Pass |

\* This test is performed quarterly

**Certification and Compliance Statements**

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| 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 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: D. Simoncelli, Quality Control Chemist

Date of Approval: 04/05/21

*Derek Simoncelli*