Designation: D 770 – 95 (Reapproved 1999)

Standard Specification for Isopropyl Alcohol[1,2]

This standard is issued under the fixed designation D 770; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers isopropyl alcohol (99 % grade).

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.3 For hazard information and guidance, see the supplier's Material Safety Data Sheet.

2. Referenced Documents

2.1 *ASTM Standards:*

D 268 Guide for Sampling and Testing Volatile Solvents and Chemical Intermediates for Use in Paint and Related Coatings and Materials[3]

D 1078 Test Method for Distillation Range of Volatile Organic Liquids[3]

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)[3]

D 1296 Test Method for Odor of Volatile Solvents and Diluents[3]

D 1353 Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products[3]

D 1364 Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)[3]

D 1476 Test Method for Heptane Miscibility of Lacquer Solvents[3]

D 1613 Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products[3]

D 1722 Test Method for Water Miscibility of Water-Soluble Solvents[3]

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter[4]

E 1 Specification for ASTM Thermometers[5]

E 300 Practice for Sampling Industrial Chemicals[6]

2.2 *U.S. Federal Specification:*

PPP-C-2020 Chemicals, Liquid, Dry, and Paste: Packaging of[7]

3. Properties

3.1 Isopropyl alcohol shall conform to the following requirements:

Apparent specific gravity,	
20/20°C	0.785 to 0.787
25/25°C	0.782 to 0.784
Color, Pt-Co scale, max	10
Distillation range, 760 mmHg	[A]
Nonvolatile matter, max, mg/100 mL	5
Odor	nonresidual[B]
Water, max, weight %	0.2[C]
Acidity, acetic acid, max, weight %	0.002[D]
Water miscibility	passes test

[A] Distill entirely within a 1.5°C range which shall include 82.3°C.

[B] Optional, when required, as agreed upon between the supplier and the consumer.

[C] This quantitative water limit ensures that the material is miscible without turbidity with 19 volumes of 99 % heptane at 20°C.

[D] 0Equivalent to 0.019 mg KOH per gram of sample.

4. Sampling

4.1 The material shall be sampled in accordance with Practice E 300.

5. Test Methods

5.1 The properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

5.1.1 *Apparent Specific Gravity*—Determine the apparent specific gravity at 20 or 25°C by a convenient method that is accurate to the third decimal place. See Guide D 268 or Test Method D 4052.

5.1.2 *Color*—Test Method D 1209.

5.1.3 *Distillation Range*—Test Method D 1078, using an ASTM Solvents Distillation Thermometer 40C having a range from 72 to 126°C and conforming to the requirements in Specification E 1.

5.1.4 *Nonvolatile Matter*—Test Method D 1353.

5.1.5 *Odor*—Test Method D 1296.

[1] This specification is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

Current edition approved April 15, 1995. Published June 1995. Originally published as D 770 – 44. Last previous edition D 770 – 90.

[2] This compound is also known under the name propanol-2 and isopropanol.

[3] *Annual Book of ASTM Standards*, Vol 06.04.

[4] *Annual Book of ASTM Standards*, Vol 05.02.

[5] *Annual Book of ASTM Standards*, Vol 14.03.

[6] *Annual Book of ASTM Standards*, Vol 15.05.

[7] Available from Standardization Documents Order Desk, Bldg 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

5.1.6 *Water*—Test Methods D 1364 and D 1476.
5.1.7 *Acidity*—Test Method D 1613.
5.1.8 *Water Miscibility*—Test Method D 1722.

6. Packaging and Package Marking

6.1 Package size shall be agreed upon between the purchaser and the supplier.

6.2 Packaging shall conform to applicable carrier rules and regulations, or when specified, shall conform to Fed. Spec. PPP-C-2020.

7. Keywords

7.1 isopropanol; isopropyl alcohol; petrohol; 2–propanol; secondary propyl alcohol