Designation: D 3131 – 02

Standard Specification for Isopropyl Acetate (99 % Grade)[1]

This standard is issued under the fixed designation D 3131; 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 acetate (99 % grade).

1.2 For specific hazard information and guidance, see the supplier's Material Safety Data Sheet for materials listed in this specification.

1.3 The following applies to all specified limits in this standard; for purposes of determining conformance with this standard, an observed value or a calculated value shall be rounded off "to the nearest unit" in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E 29.

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[2]

D 1078 Test Method for Distillation Range of Volatile Organic Liquids[2]

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)[2]

D 1296 Test Method for Odor of Volatile Solvents and Diluents[2]

D 1353 Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products[2]

D 1364 Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)[2]

D 1476 Test Method for Heptane Miscibility of Lacquer Solvents[2]

D 1613 Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products[2]

D 3545 Test Method for Alcohol Content and Purity of Acetate Esters by Gas Chromatography[2]

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter[3]

E 1 Specification for ASTM Thermometers[4]

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications[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 acetate (99 % grade) shall conform to the following requirements:

Apparent specific gravity:	
20/20°C	0.870 to 0.874
25/25°C	0.865 to 0.869
Color, Pt-Co scale, max	10
Distillation range, 760 mmHg : (see Note 1)	
Initial boiling point, min, °C	85
Dry point, max, °C	90
Nonvolatile matter, mg/100 mL, max	5
Odor (see Note 1)	nonresidual
Water, weight %, max (see Note 2)	0.2. This quantitative water limit ensures that 1 volume of the material is miscible without turbidity with 19 volumes of 99 % heptane at 20°C.
Acidity (free acid as acetic acid), weight %, max	0.01, equivalent to 0.093 mg of KOH per gram of sample
Purity, weight %, min	99.0

NOTE 1—Optional as agreed upon between the buyer and the seller.

NOTE 2—In some cases, Test Method D 1476 may serve as a useful alternative method to determine the presence of water. Because it is a qualitative test, its use would require agreement between user and supplier.

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

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

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

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

[5] *Annual Book of ASTM Standards*, Vol 14.02.

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

[7] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098.

***A Summary of Changes section appears at the end of this standard.**

determined in accordance with the following ASTM test methods:

5.1.1 *Apparent Specific Gravity*—Determine the apparent specific gravity by any convenient method that is accurate to the third decimal place, the temperature of both specimen and water being 20 or 25°C. See either the Specific Gravity section of 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.

5.1.6 *Water*—Test Methods D 1364 and D 1476.

5.1.7 *Acidity*—Test Method D 1613.

5.1.8 *Purity*—Test Method D 3545.

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 ester; isopropyl acetate; solvent

SUMMARY OF CHANGES

Committee D01 has identified the location of selected changes to this standard since the last date of issue (D 3131 - 97) that may impact the use of this standard.

(1) Added reference to Practice E 29 in 1.3.
(2) Added Practice E 29 to list of Referenced Documents in Section 2.
(3) A reference to Note 1 in 3.1 was added to the Odor test description making the test optional as agreed between buyer and seller. Note 2 was added to include reference to Test Method 1476.
(4) Added keywords “ester” and “solvent.”