



## Designation: D3131 – 07 (Reapproved 2021)

# Standard Specification for Isopropyl Acetate (99 % Grade)<sup>1</sup>

This standard is issued under the fixed designation D3131; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

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

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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

1.4 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 E29.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

**D268** Guide for Sampling and Testing Volatile Solvents and Chemical Intermediates for Use in Paint and Related Coatings and Material (Withdrawn 2021)<sup>3</sup>

**D1078** Test Method for Distillation Range of Volatile Organic Liquids

**D1209** Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on www.astm.org.

**D1296** Test Method for Odor of Volatile Solvents and Diluents (Withdrawn 2021)<sup>3</sup>

**D1353** Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products

**D1364** Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method) (Withdrawn 2021)<sup>3</sup>

**D1476** Test Method for Heptane Miscibility of Lacquer Solvents (Withdrawn 2021)<sup>3</sup>

**D1613** Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products

**D3545** Test Method for Alcohol Content and Purity of Acetate Esters by Gas Chromatography (Withdrawn 2021)<sup>3</sup>

**D4052** Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter

**D5386** Test Method for Color of Liquids Using Tristimulus Colorimetry

**E29** Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

**E300** Practice for Sampling Industrial Chemicals

2.2 U.S. Federal Specification:

**PPP-C-2020** Chemicals, Liquid, Dry, and Paste: Packaging of <sup>4</sup>

## 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 or
25/25 °C	0.865 to 0.869
Color, Pt-Co scale, max (Note 3)	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.

<sup>4</sup> Available from Metal Powder Industries Federation (MPIF), 105 College Rd. East, Princeton, NJ 08540, http://www.mpiif.org.

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 **D1476** 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.

NOTE 3—Instrumental Pt-Co color determined by Test Method **D5386** has been shown to have no statistically significant difference from Pt-Co color determined by Test Method **D1209**. However, it is not known whether isopropyl acetate was part of the sample set included in the interlaboratory study.

#### 4. Sampling

4.1 The material shall be sampled in accordance with Practice **E300**.

#### 5. Test Methods

5.1 The properties enumerated in this specification shall be 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 °C or 25 °C. See either the Specific Gravity section of Guide **D268** or Test Method **D4052**.

5.1.2 *Color*—Test Method **D1209**.

5.1.3 *Distillation Range*—Test Method **D1078**, using a temperature measuring device having a range of 72 °C to 126 °C and a resolution of 0.1 °C.

5.1.4 *Nonvolatile Matter*—Test Method **D1353**.

5.1.5 *Odor*—Test Method **D1296**.

5.1.6 *Water*—Test Methods **D1364** and **D1476**.

5.1.7 *Acidity*—Test Method **D1613**.

5.1.8 *Purity*—Test Method **D3545**.

#### 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

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