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Standard Specification for Isophorone¹

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1. Scope

1.1 This specification covers isophorone² (98 % grade) for use in paint, varnish, lacquer, and related products.

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

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 Materials³

D 1078 Test Method for Distillation Range of Volatile Organic Liquids³

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

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

D 1613 Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used In Paint, Varnish, Lacquer, and Related Products³

D 2192 Test Method for Purity of Aldehydes and Ketones³

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter⁴

E 1 Specification for ASTM Thermometers⁵

E 300 Practice for Sampling Industrial Chemicals⁶

2.2 U.S. Federal Specification:

PPP-C-2020 Chemicals, Liquid, Dry, and Paste: Packaging of⁷

3. Properties

3.1 Isophorone shall conform to the following requirements:

Apparent specific gravity:	
20/20°C	0.921 to 0.923
25/25°C	0.918 to 0.920
Color, Pt-Co scale, max	100
Distillation, °C	
Initial boiling point, min	210
95 % point, max	218
Purity, weight % min	98
Acidity as acetic acid, weight %, max	0.02
Water, weight %, max	0.1

4. Sampling

4.1 Sample the material 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 test methods:

5.1.1 *Apparent Specific Gravity*—Determine the apparent specific gravity by any 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 105C having a range from 198 to 252°C and conforming to the requirements in Specification E 1.

5.1.4 *Purity*—Test Method D 2192.

5.1.5 *Acidity*—Test Method D 1613.

5.1.6 *Water*—Test Method D 1364.

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 isophorone; ketones; solvents

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² This compound is also known under the name 3,5,5-trimethyl-2-cyclohexene-1-one.

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.

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