



Designation: D 1153 – 94 (Reapproved 2001)

Standard Specification for Methyl Isobutyl Ketone^{1, 2}

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers methyl isobutyl ketone (99.0 % grade).

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 Related Coatings and Material³

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 1296 Test Method for Odor of Volatile Solvents and Diluents³

D 1353 Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products³

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

D 1476 Test Method for Heptane Miscibility of Lacquer Solvents³

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

D 3329 Test Method for Purity of Methyl Isobutyl Ketone by Gas Chromatography³

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

E 1 Specification for ASTM Thermometers⁵

¹ 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 D 01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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² This compound is also known under the name of 2-methyl -4-pentanone.

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.

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 Methyl isobutyl ketone (99.0 % grade) shall conform to the following requirements:

Methyl isobutyl ketone wt %, min	99.0
Apparent specific gravity:	
20/20°C	0.800 to 0.803
25/25°C	0.796 to 0.799
Color, Pt-Co units, max	15
Distillation, °C	
Initial boiling point, min	114.0
Dry point, max	117.0
Nonvolatile matter, mg/100 mL, max	5
Odor ^A	nonresidual
Water, wt %, max ^B	0.1
Acidity (free acid as acetic acid), wt % , max	0.01
Methyl isobutyl carbinol, wt %, max	0.3

^A Optional: Test for odor only when agreed upon as necessary by the purchaser and the supplier.

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

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 application 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 or 25°C. See Guide **D 268** or Test Method **D 4052**.

5.1.2 *Color*—Test Method **D 1209**.

⁶ Discontinued; see *2001 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.