



Standard Specification for Acetone^{1,2}

This standard is issued under the fixed designation D 329; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

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

1. Scope *

1.1 This specification covers acetone (99.5 % 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.* Specific hazard statements are given in 1.3 and 4.1.

1.3 This specification specifies the use of a U.S. Occupational Safety and Health Administration (OSHA)-designated hazardous chemical, acetone. 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 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 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 1363 Test Method for Permanganate Time of Acetone and Methanol³
- D 1364 Test Method for Water in Volatile Solvents (Karl 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 1614 Test Method for Alkalinity in Acetone³
D 1722 Test Method for Water Miscibility of Water-Soluble Solvents³

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:*⁷

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

3. Properties

3.1 Acetone (99.5 % grade) shall conform to the following requirements:

Acidity (free acid as acetic) wt %, max	0.002 (equivalent to 0.019 mg of KOH/g of sample)
Aldehydes	passes test
Alkalinity (as ammonia) wt %, max	0.001
Apparent specific gravity:	
20/20°C	0.7910 to 0.7930
25/25°C	0.7865 to 0.7885
Assay wt %, min	99.5
Color Pt-Co, max	5
Distillation range 760 mmHg	shall distill entirely within a 1.0°C range which shall include 56.1°C
Nonvolatile matter mg/100 mL, max	5
Odor (Note 2)	nonresidual
Permanganate time	color of added KMnO ₄ must be retained for at least 30 minutes at 25°C in the dark
Water wt %, max	0.5 (Note 1)
Water miscibility	passes test

NOTE 1— This quantitative water limit ensures that the material is miscible without turbidity with 19 volumes of 99 % heptane at 20°C.

NOTE 2—Optional: Test for odor only when agreed upon as necessary between the purchaser and the supplier.

4. Sampling

4.1 The material shall be sampled in accordance with

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.

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² The compound is also known under the names dimethyl ketone and 2-propanone.

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.

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