Designation: D 3620 – 04

Standard Specification for Glacial Acetic Acid[1]

This standard is issued under the fixed designation D 3620; 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 glacial (99.8 %) acetic acid for use in paint, varnish, lacquer, and related products.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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.

1.4 *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.*

1.5 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:* [2]

D 2191 Test Method for Acetaldehyde Content of Vinyl Acetate

D 3546 Test Method for Formic Acid in Glacial Acetic Acid

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals

E 300 Practice for Sampling Industrial Chemicals

E 302 Test Methods for Monobasic Organic Acids

E 394 Test Method for Iron in Trace Quantities Using the 1,10-Phenanthroline Method

2.2 *U.S. Federal Specification:*

PPP-C-2020 Chemicals, Liquid, Dry, and Paste: Packaging of[3]

3. Properties

3.1 Glacial acetic acid shall conform to the following requirements:

Acetic acid, weight %, min	99.8
Freezing point, °C, min	16.2
Color, Pt-Co scale, max	10
Water content, weight %, max	0.16
Iron, ppm (mg/kg), max	0.40
Acetaldehyde, weight %, max	0.05
Formic acid, weight %, max	0.09

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 determined in accordance with the following ASTM test methods:

5.1.1 *Purity*—Test Methods E 302 estimates the purity from the freezing point.

5.1.2 *Freezing Point*—Test Methods E 302.

5.1.3 *Color*—Test Methods E 302.

5.1.4 *Water*—Test Methods E 302.

5.1.5 *Iron*—Test Method E 394, using a 20-mL specimen diluted to 80 mL with water.

5.1.5.1 *Report*—Report the iron content to the nearest 0.01 ppm (mg/kg). Duplicates that agree within 0.07 ppm absolute are acceptable for averaging (95 % confidence level).

5.1.5.2 *Precision*[4]—The precision statements are based upon an interlaboratory study in which one operator in eight different laboratories analyzed two samples of acetic acid in duplicate on two different days. The results were treated in accordance with Practice E 180. The within-laboratory coefficient of variation was 3.05 % with 14 df and the between-laboratory coefficient of variation was 6.00 % with 6 df. Based upon these coefficients of variation, the following criteria

[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 D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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[2] 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.

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

[4] Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D01-1010.

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