



Designation: D3548 – 09 (Reapproved 2023)

Standard Specification for Ethyl Acrylate¹

This standard is issued under the fixed designation D3548; 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 ethyl acrylate (99 % grade) for use in paint, varnish, lacquer, and related products.

1.2 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.

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

1.4 For specification hazard information and guidance, see the supplier’s Safety Data Sheet for materials listed in this specification.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific hazard statements are given in 4.1.

1.6 *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:²

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

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.

D1364 Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)

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

D3125 Test Method for Monomethyl Ether of Hydroquinone in Colorless Monomeric Acrylate Esters and Acrylic Acid (Withdrawn 2021)³

D3362 Test Method for Purity of Acrylate Esters by Gas Chromatography (Withdrawn 2011)³

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:⁴

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

3. Properties

3.1 Ethyl acrylate shall conform to the following requirements:

Purity wt % as ethyl acrylate, min	99.5
Water wt %, max	0.08
Color, Pt-Co scale, max (Note 1)	10 in bulk shipments, 20 in drum shipments
Acidity (free acid as acrylic acid) wt %, max	0.008
Methyl ether of hydroquinone	wppm, min 10 ⁴

⁴ or as agreed upon between the purchaser and the manufacturer. Lower levels are not recommended for safety reasons.

NOTE 1—Instrumental Pt-Co color determined by Test Method D5386 have been shown to have no statistically significant difference from Pt-Co color determined by Test Method D1209. However, it is not known whether ethyl acrylate was part of the sample set included in the interlaboratory study.

4. Precaution

4.1 Ethyl acrylate samples should be stored in amber bottles or protected from light by other means to aid in preventing polymerization. Keep samples away from heat sources and

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

⁴ Available from DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, http://quicksearch.dla.mil.

chemicals that can cause free radical polymerization. Ethyl acrylate can polymerize violently evolving considerable heat. Refer to supplier's Safety Data Sheet.

5. Sampling

5.1 The material shall be sampled in accordance with Practice **E300**. (See Precaution Section 4.)

6. Test Methods

6.1 The properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

6.1.1 *Purity*—Test Method **D3362**.

6.1.2 *Water*—Test Method **D1364**.

6.1.3 *Color*—Test Method **D1209** (see **Note 1**).

6.1.4 *Acidity*—Determine the acidity in accordance with Test Method **D1613**, except multiply the results obtained “as

acetic acid” by 72.06/60.05 or 1.4. This will convert the results obtained to “as acrylic acid.” The results obtained “as mg KOH per gram of material” are unaffected.

6.1.5 *Methyl Ether of Hydroquinone Content*—Test Method **D3125**.

7. Packaging and Package Marking

7.1 Package size shall be agreed upon by the purchaser and the supplier.

7.2 Packaging shall conform to applicable carrier rules and regulations or when specified shall conform to Fed. Spec. PPP-C-2020.

8. Keywords

8.1 acrylate; ethyl

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