Designation: D 3547 – 05

Standard Specification for *n*-Butyl Acrylate[1]

This standard is issued under the fixed designation D 3547; 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 *n*-butyl acrylate (99 % grade) for use in paint, varnish, lacquer, and related products.

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

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.* Specific hazard statements are given in 4.1.

1.5 For specific hazard information and guidance, consult supplier's Material Safety Data Sheet.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

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

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

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

D 3125 Test Method for Monomethyl Ether of Hydroquinone in Colorless Monomeric Acrylate Esters and Acrylic Acid

D 3362 Test Method for Purity of Acrylate Esters by Gas Chromatography

D 5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

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

E 300 Practice for Sampling Industrial Chemicals

2.2 *U.S. Federal Specification:*

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

3. Properties

3.1 *n*-Butyl acrylate shall conform to the following requirements

Purity wt % as *n*-butyl acrylate, min	99.0
Water wt %, max	0.10
Color, Pt-Co scale, max[A]	20
Acidity (free acid as acrylic acid) wt %, max	0.01
Methyl ether of hydroquinone	as agreed upon between the purchaser and the manufacturer

[A] Instrumental Pt-Co color determined by Test Method D 5386 have been shown to have no statistically significant difference from Pt-Co color determined by Test Method D 1209. However, it is not known whether *n*-butyl acrylate was part of the sample set included in the interlaboratory study.

4. Hazard

4.1 Store butyl acrylate samples in amber bottles or protect them from light by other means to aid in preventing polymerization. Keep samples away from heat sources and chemicals that can cause free radical polymerization. Butyl acrylate can polymerize violently evolving considerable heat. Refer to supplier's Material Safety Data Sheet.

5. Sampling

5.1 The material shall be sampled in accordance with Practice E 300. (See Hazard 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 D 3362.

6.1.2 *Water*—Test Method D 1364.

6.1.3 *Color*—Test Method D 1209 (see Note A in 3.1).

[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.

Current edition approved May 15, 2005. Published June 2005. Originally approved in 1976. Last previous edition approved in 2000 as D 3547 – 91 (2000).

[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.

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

6.1.4 *Acidity*—Determine the acidity in accordance with Test Method D 1613, 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 *Level of Methyl Ether of Hydroquinone*—Test Method D 3125.

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 *n*-butyl acrylate; 2-propenoic acid butylester

SUMMARY OF CHANGES

Committee D01.35 has identified the location of selected changes to this standard since the last issue (D 3547 – 91 (2000)) that may impact the use of this standard.

(1) Added reference to Practice E 29 in Scope section.
(2) Added Practice E 29 and D 5386 to list of Referenced Documents.
(3) Added new Note A to 3.1.
(4) Referenced new Note A in 6.1.3.