



Standard Test Methods for Pentaerythritol¹

This standard is issued under the fixed designation D 2195; 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 These test methods cover the testing of pentaerythritol for use in the manufacture of alkyd resins and other synthetic resins.

1.2 The test procedures appear in the following sections:

	Section
Sulfate ash	5 to 10
Moisture	11 to 16
Hydroxyl	17 to 22
Assay (by dibenzal)	23 to 29
Assay (by gas chromatography)	30 to 41
Phthalate ester color	42 to 49

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 purposes of determining conformance of an observed or a calculated value using this test method to relevant specifications, test result(s) 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.

1.5 *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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 34.

1.6 For hazard information and guidance, see the supplier’s Material Safety Data Sheet.

2. Referenced Documents

2.1 *ASTM Standards:*²

D 1193 Specification for Reagent Water

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

¹ These test methods are under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemicals 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.

D 1615 Test Methods for Glycerol, Ethylene Glycol, and Pentaerythritol in Alkyd Resins³

D 1728 Test Method for Phthalate Ester Color of High-Gravity Glycerin³

D 2593 Test Method for Butadiene Purity and Hydrocarbon Impurities by Gas Chromatography

E 1 Specification for ASTM Liquid-in-Glass Thermometers

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 200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

E 203 Test Method for Water Using Volumetric Karl Fischer Titration

E 222 Test Methods for Hydroxyl Groups Using Acetic Anhydride Acetylation

E 260 Practice for Packed Column Gas Chromatography

3. Significance and Use

3.1 These test methods provide a measurement of sulfate, ash, moisture (water), hydroxyl content, assay by dibenzal and gas chromatography, and phthalate ester color of pentaerythritol. The results of these measurements can be used for specification acceptance.

4. Purity of Reagents

4.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.⁴ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

³ Withdrawn.

⁴ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Anal. Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

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