



Designation: E1228 – 17

Standard Test Method for Assay of Peroxy Esters—Catalyzed Iodometric Procedure¹

This standard is issued under the fixed designation E1228; 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 test method covers the assay of organic peroxides of the peroxy ester type.

NOTE 1—Other test methods for the assay of organic peroxides are given in Test Methods E298, E475, and E755.

1.2 Review the current safety data sheets (SDS) for detailed information concerning toxicity, first aid procedures, and safety precautions.

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

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 hazards statements are given in Section 9.

1.5 *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

D1193 Specification for Reagent Water

D6809 Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

E180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Spe-

cialty Chemicals (Withdrawn 2009)³

E200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

E298 Test Methods for Assay of Organic Peroxides

E475 Test Method for Assay of Di-*tert*-Butyl Peroxide Using Gas Chromatography

E755 Test Method for Dicumyl Peroxide, Assay (Liquid Chromatography) (Withdrawn 2016)³

3. Terminology

3.1 *Definitions:*

3.1.1 *active oxygen*—the oxidizing power present in organic peroxides expressed as oxygen (equivalent weight 8.00).

4. Summary of Test Method

4.1 A sample is dissolved in a mixture of isopropyl alcohol, acetic acid, and cupric chloride. A solution of potassium iodide is added and the mixture is briefly heated, then allowed to react in the dark at room temperature for 30 min. The cupric ion catalyzes the reduction of the peroxide and the liberated iodine is titrated with standard sodium thiosulfate solution.

5. Significance and Use

5.1 Peroxy esters are widely used as chemical intermediates, catalysts, and initiators. This test method provides a procedure for assaying peroxy esters to determine if they are suitable for their intended use.

6. Interferences

6.1 Conjugated diolefins interfere under the conditions of analysis by absorbing iodine.

7. Apparatus

7.1 *Iodine Flasks*, 250-mL capacity, with stoppers.

NOTE 2—All glassware should be cleaned thoroughly with dichromate cleaning solution before use.

7.2 *Beakers*, 1-mL capacity, glass or PTFE.

7.3 *Buret*, 50-mL capacity, graduated in 0.1-mL subdivisions.

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

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of Subcommittee D16.15 on Industrial and Specialty General Standards.

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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.

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