



Designation: D 847 – 04

Standard Test Method for Acidity of Benzene, Toluene, Xylenes, Solvent Naphthas, and Similar Industrial Aromatic Hydrocarbons¹

This standard is issued under the fixed designation D 847; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method is intended for the detection of acidity and for the quantitative determination of acidity of benzene, toluene, xylenes, solvent naphthas, and similar industrial aromatic hydrocarbons.

1.2 In determining the conformance of the test results using this method to applicable specifications, results shall be rounded off in accordance with the rounding-off method of Practice E 29.

1.3 *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 8.

2. Referenced Documents

2.1 ASTM Standards:²

D 1193 Specification for Reagent Water

D 3437 Practice for Sampling and Handling Liquid Cyclic Products

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

2.2 Other Documents:

OSHA Regulations, 29 CFR, Paragraphs 1910.1000 and 1910.1200³

3. Terminology

3.1 Definitions:

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.01 on Benzene, Toluene, Xylenes, Cyclohexane and Their Derivatives.

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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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

3.1.1 *acidity, n*—the number of milligrams of sodium hydroxide consumed when 100 mL of the specimen are titrated under the conditions prescribed in this test method.

3.1.2 *acid reaction, n*—a characteristic of materials producing the acid-color of the indicator used under the conditions prescribed in this test method.

3.1.3 *alkaline or basic reaction, n*—a characteristic of the materials producing the alkali-color of the indicator used under the conditions prescribed in this test method.

4. Summary of Test Method

4.1 The acidity of aromatic hydrocarbons is detected and determined quantitatively using a sodium hydroxide titration and a color change in a phenolphthalein indicator.

5. Significance and Use

5.1 This test method is suitable for setting specifications, for use as an internal quality control tool, and for use in development or research work on industrial aromatic hydrocarbons and related materials. This test method gives an indication of residual acidity and is a measure of the quality of the finished product. It is an indication of the tendency of the product to corrode equipment.

6. Interferences

6.1 Tests for acidity are not applicable in the presence of contaminating acidic or alkaline gases, soaps, salts, or other compounds derived from the atmosphere or apparatus. The container holding the specimen, and the apparatus, water, indicator, and other materials used in the test shall be chosen so that they themselves shall not appreciably affect the results. Since new corks used in specimen bottles often are bleached with oxalic acid, it is advisable to rinse them thoroughly and check them for neutrality with the indicator used in the test. Glassware shall be of acid-resistant and alkali-resistant glass⁴ and shall be rinsed with neutral distilled water before use. The room in which the test is performed shall be chosen so as to

⁴ Borosilicate glass or the equivalent has been found satisfactory for this purpose.

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