



Designation: D 2086 – 03

## Standard Test Method for Acidity in Vinyl Acetate and Acetaldehyde<sup>1</sup>

This standard is issued under the fixed designation D 2086; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope\*

1.1 This test method covers the determination of total acidity as acetic acid in refined vinyl acetate and acetaldehyde.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 For purposes of determining conformance of an observed value 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.

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

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 8.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 1193 Specification for Reagent Water<sup>2</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>3</sup>

E 200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis<sup>4</sup>

### 3. Summary of Test Method

3.1 The specimen is mixed with either an equal volume of chilled water or an equal volume of ethyl alcohol and titrated at reduced temperature with aqueous sodium hydroxide solution to a phenolphthalein end point.

<sup>1</sup> This test method 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 Oct. 1, 2003. Published October 2003. Originally approved in 1962. Last previous edition approved in 2002 as D 2086 – 02.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 11.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 15.05.

### 4. Significance and Use

4.1 This test method provides a measurement of total acidity in vinyl acetate and acetaldehyde. The results of these measurements can be used for specification acceptance.

### 5. Interferences

5.1 Any material or contaminant that will react with NaOH under the test conditions will affect the results.

5.2 Vinyl acetate will decompose on storage, typically by way of hydrolysis, to form acetic acid.

5.3 Acetaldehyde will react with oxygen, either dissolved or in a storage container, to form acetic acid.

5.4 Various acids or other acidic materials may be present. Common practice, including the method used here, calculates these as acetic acid. The actual weight percent of acidic materials may be different.

### 6. Apparatus

6.1 *Buret*, 10-mL, graduated in 0.05-mL subdivisions.

6.2 *Erlenmeyer Flask*, 250-mL capacity.

6.3 *Graduated Cylinder*, 50 or 100-mL capacity.

6.4 *Cold Bath*, maintained at 0°C or below.

### 7. Reagents

7.1 *Purity of Reagents*—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.<sup>5</sup> 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.

7.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type IV of Specification D 1193.

7.3 *Ethyl Alcohol (Ethanol)*, 95 volume %, minimum.

<sup>5</sup> *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 *Analar 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.