Designation: D2191 – 06

Standard Test Method for Acetaldehyde Content of Vinyl Acetate[1]

This standard is issued under the fixed designation D2191; 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 determination of trace quantities of acetaldehyde, in the range from 0.00 to 0.05 %, contained in 99 % grade vinyl acetate.

1.2 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 E29.

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 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:*[2]

D1193 Specification for Reagent Water

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

3. Summary of Test Method

3.1 The acetaldehyde present in the specimen is reacted with a measured excess of sodium bisulfite. The amount of sodium bisulfite consumed, determined by titrating the excess with a standard iodine solution, is a measure of the acetaldehyde present in the vinyl acetate.

4. Significance and Use

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

5. Interference

5.1 Ketones and other aldehydes, if present, cause a positive interference.

6. Apparatus

6.1 *Buret,* 50-mL capacity, graduated in 0.1-mL subdivisions, with a funnel or flared top and a ground-glass stopcock.

6.2 *Erlenmeyer Flask,* 500-mL capacity, glass-stoppered.

6.3 *Pipet,* 50-mL capacity.

6.4 *Pipet,* 100-mL capacity.

7. Reagents

7.1 *Purity of Reagents*—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.[3] Other grades may be used provided that 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 D1193.

7.3 *Iodine, Standard Solution* (0.1 *N*)—Dissolve 35.0 g of potassium iodide (KI) and 13.0 g of resublimed iodine in water, and dilute to 1 L with water. Store this solution in a dark bottle and standardize each day, as required, against a standard 0.1 *N* sodium thiosulfate ($Na_2S_2O_3$) solution. (See standardization procedure, 9.3 and 9.4.)

[1] 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 .

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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] *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**