



Standard Test Method for Volatile Matter (Including Water) of Vinyl Chloride Resins¹

This standard is issued under the fixed designation D 3030; 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 quantitative determination of the volatile matter (including water) present in vinyl chloride resins.

1.2 The values stated in SI units are to be regarded as the standard.

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.*

NOTE 1—This test method and ISO 1269–1980 are identical in all technical details.

2. Referenced Documents

2.1 ASTM Standards:

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing²

D 883 Terminology Relating to Plastics²

D 1600 Terminology for Abbreviated Terms Relating to Plastics²

E 145 Specification for Gravity-Convection and Forced-Ventilation Ovens³

2.2 ISO Standard:

ISO 1269–1980 Homopolymer and Copolymer Resins of Vinyl Chloride—Determination of Volatile Matter Including Water⁴

3. Terminology

3.1 *Definitions:* Definitions are in accordance with Definitions D 883 and Terminology D 1600, unless otherwise indicated.

4. Summary of Test Method

4.1 This test method consists of heating at 110°C a known quantity of powdered resin to constant mass. The calculated

mass loss defines quantitatively the volatile matter present in the sample.

5. Significance and Use

5.1 The quantity of volatile components in a vinyl chloride resin can be established by this test method. This test method does not identify the components.

6. Apparatus

6.1 *Oven*—A forced-ventilation oven conforming to the requirements for Type IIA in Specification E 145. The oven should be capable of maintaining a temperature of $110 \pm 1^\circ\text{C}$ when the damper is half open and the vent is wide open.

6.1.1 The oven shall be equipped with a calibrated ASTM thermometer and the proper stem correction shall be applied to the temperature measurement.

6.1.2 The oven temperature shall be controlled by an accurate, reliable thermoregulator, maintaining the set point within $\pm 0.5^\circ\text{C}$ or better.

6.1.3 The inside of the oven shall be free of contamination or surface deposits. Stainless steel oven liners should be used to reduce corrosion due to continued exposure to decomposition gases.

6.2 *Sample Container*—A weighing vessel of low shape design in glass, aluminum, or stainless steel of sufficient size to hold a 10-g resin sample. An aluminum weighing dish, 57 mm in diameter and 18 mm in depth, is suitable.

6.3 *Balance*—A weighing balance with a precision to within 0.001 g.

7. Preparation of Apparatus

7.1 Maintain the oven at the temperature of the test for at least 1 h prior to insertion of the specimens.

7.2 Prior to test operation, verify the uniformity of temperature within the oven according to Specification E 145. The airflow in the oven should be greater than $0.3 \text{ m}^3/\text{min}$ ($10 \text{ ft}^3/\text{min}$).

NOTE 2—The temperature uniformity can also be verified by placing 5 or more portions of the same resin sample in the oven, distributed over the test area, following Section 8. Calculate the percent of volatile loss (Section 9). If the differences in the volatile loss of the samples exceed the test reproducibility, the temperature in the oven is not uniform and must be corrected before proceeding with the test.

8. Procedure

8.1 Dry the weighing vessel in the oven at $110 \pm 1^\circ\text{C}$ for 30

¹ This test method is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.15.08).

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This edition includes the addition of an ISO equivalency statement (Note 1).

² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.