



Designation: D1203 – 16

# Standard Test Methods for Volatile Loss From Plastics Using Activated Carbon Methods<sup>1</sup>

This standard is issued under the fixed designation D1203; 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.

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

## 1. Scope\*

1.1 These test methods cover the determination of volatile loss from a plastic material under defined conditions of time and temperature, using activated carbon as the immersion medium.

1.2 Two test methods are covered as follows:

1.2.1 *Test Method A, Direct Contact with Activated Carbon*—In this test method the plastic material is in direct contact with the carbon. This test method is particularly useful in the rapid comparison of a large number of plastic specimens.

1.2.2 *Test Method B, Wire Cage*—This test method prescribes the use of a wire cage, which prevents direct contact between the plastic material and the carbon. By eliminating the direct contact, the migration of the volatile components to the surrounding carbon is minimized and loss by volatilization is more specifically measured.

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

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.*

NOTE 1—This standard and ISO 176 address the same subject matter, but differ in technical content.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

[D618 Practice for Conditioning Plastics for Testing](#)

[D883 Terminology Relating to Plastics](#)

<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee D20 on Plastics and are the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.15.11 on Plasticizers).

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<sup>2</sup> 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.

[D1600 Terminology for Abbreviated Terms Relating to Plastics](#)

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

2.2 *Other Documents*:

[ISO 176 Determination of the Loss of Plasticizers from Plastics by the Activated Carbon Method](#)<sup>3</sup>

## 3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminologies [D883](#) and [D1600](#) unless otherwise indicated.

## 4. Significance and Use

4.1 The test methods are intended to be rapid empirical tests which have been found to be useful in the relative comparison of materials having the same nominal thickness.

NOTE 2—When the plastic material contains plasticizer, loss from the plastic is assumed to be primarily plasticizer. The effect of moisture is considered to be negligible.

4.2 Correlation with ultimate application for various plastic materials shall be determined by the user.

## 5. Apparatus

5.1 *Balance*—An accurate analytical balance, equipped with Class S weights or better.

5.2 *Oven or Bath*—A thermostatically controlled oven or bath capable of maintaining the temperature to within  $\pm 1^\circ\text{C}$  of the test temperature, which normally will be in the range from 50 to 150°C.

5.3 *Containers*—Metal cans or wide-mouth screw-top jars, of cylindrical form, approximately 100 mm in diameter and approximately 1/2 L in capacity.

NOTE 3—Pint paint cans work well.

5.4 *Micrometer*—A micrometer capable of measuring to the nearest 0.0025 mm for measuring the thickness of the test specimens.

<sup>3</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

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