



Standard Test Method for Weight Loss of Plasticizers on Heating¹

This standard is issued under the fixed designation D 2288; 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 the relative volatility of plasticizers, or volatile contaminants, or both, at elevated temperatures.

1.2 The text of this test method references notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of this test method.

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—There are no ISO standards covering the primary subject of this test method.

2. Referenced Documents

2.1 ASTM Standards:

D 618 Practice for Conditioning Plastics 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

3. Terminology

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

4. Summary of Test Method

4.1 Plasticizers are heated in crystallizing dishes in a circulating air oven on a rotating turntable, at either 105°C (221°F)

or 155°C (310°F). The specimens are removed from the oven, cooled and weighed, after heating periods of 2, 4, and 24 h. The weight lost in these times is determined and reported as percent plasticizer loss.

5. Significance and Use

5.1 The quantity of volatile components in a plasticizer has influence on fuming during processing, and the retention of flexibility and other properties in the end product (see 5.2). This test method may be used to measure the volatile components under closely controlled conditions.

5.2 Results obtained by this test method are not strictly equivalent to those obtained during processing where conditions of temperature and air flow are quite different.

5.3 Volatility is dependent upon air flow and temperature. Due to the difficulty of controlling air flow, results may vary widely between ovens. Therefore, control plasticizers shall be run simultaneously when making close comparisons.

6. Apparatus

6.1 *Oven*—Forced-ventilation laboratory oven, Type II, Grade A, with rotating turntable driven at a rate of 2 to 6 rpm as specified in Specification E 145.

6.2 *Crystallizing Dishes*, 50 mm (2 in.) in diameter and 35 mm (1 $\frac{3}{8}$ in.) in height.

7. Temperatures of Test

7.1 The test temperatures shall be 105 \pm 1°C (221 \pm 2°F) or 155 \pm 2°C (310 \pm 5°F).

NOTE 2—Preferably volatile plasticizers are tested at 105°C and permanent-type plasticizers are tested at 155°C. Volatile plasticizers and permanent-type plasticizers should not be tested together, as the permanent-type plasticizer may gain weight by absorption of volatiles.

8. Conditioning

8.1 *Conditioning*—Condition the test specimens at 23 \pm 2°C (73.4 \pm 3.6°F) and 50 \pm 5 % relative humidity for not less than 40 h prior to test in accordance with Procedure A of Practice D 618, for those tests where conditioning is required. In cases of disagreement, the tolerances shall be \pm 1°C (\pm 1.8°F) and \pm 2 % relative humidity.

¹ This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.15.11).

Current edition approved July 10, 1997. Published April 1998. Originally published as D 2288 – 64 T. Last previous edition D 2288 – 92.

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

³ *Annual Book of ASTM Standards*, Vol 10.01 and 14.02.

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