



Designation: D1239 – 07

Standard Test Method for Resistance of Plastic Films to Extraction by Chemicals¹

This standard is issued under the fixed designation D1239; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This test method for resistance of plastic films to chemicals covers the measurement of the weight loss of film after immersion in chemicals.

NOTE 1—There is no known ISO equivalent to this test method.

NOTE 2—Film is defined as sheeting having nominal thickness not greater than 0.25 mm [0.010 in.], in accordance with Terminology D883.

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents

D618 Practice for Conditioning Plastics for Testing

D882 Test Method for Tensile Properties of Thin Plastic Sheeting

D883 Terminology Relating to Plastics

3. Terminology

3.1 *Definitions*—For definitions of technical terms pertaining to plastics used in this test method, see Terminology D883.

4. Significance and Use

4.1 This test method is intended to be a rapid empirical test to determine the loss of the plasticizer or other extractable

components from the plastic film when immersed in liquids commonly used in households.

5. Apparatus

5.1 *Balance*—An analytical balance, capable of weighing to 0.0001 g.

NOTE 3—An analytical balance capable of weighing to 0.001 g can be used when the specimen thickness is greater than 0.05 mm [0.002 in.] and the extracted weight loss of the specimen exceeds 0.005 g.

5.2 *Containers*—Pint jars or cans with a diameter of at least 65 mm [2.5 in.] (one container for each specimen).

6. Materials

6.1 *Distilled Water*—Freshly prepared distilled or deionized water.

6.2 *Soap Solution (1 %)*—Dissolve 12 g of dehydrated pure white soap flakes (dried for 1 h at 105°C) in 1200 mL of distilled water. This is sufficient solution to test three specimens.

6.3 *Cottonseed Oil*—Household cooking grade.

6.4 *Mineral Oil, USP*—Heavy grade, sp gr 0.875 to 0.905.

6.5 *Kerosine*.

6.6 *Ethyl Alcohol (50 %)* as described in Test Method D543.

6.7 Any other standard or supplementary reagent listed in Test Method D543.

7. Test Specimen

7.1 The test specimens for plastic films shall be in the form of squares 50 ± 0.25 mm [2 in.] on each side. At least three specimens of each sample shall be tested with each chemical reagent.

7.2 Nothing in this test method precludes the use of specimens of other dimensions or the making of other tests on the same specimens after they have been exposed to the chemicals. Another acceptable specimen is a disk 50 ± 0.25 mm [2 in.] in diameter (total area 41.5 cm²), or a tension specimen 100 by 25 mm [4 by 1 in.] as prescribed in Test Methods D882. For such specimens, use a proportionate amount of chemical and container of appropriate dimensions so that the specimen can be immersed in a completely vertical position during the test. The

¹ This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.19 on Thermoplastic Materials.

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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.

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