



# Standard Test Method for Contact Compatibility Between Asphaltic Materials (Oliensis Test)<sup>1</sup>

This standard is issued under the fixed designation D1370/D1370M; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

## 1. Scope

1.1 This test method provides a means for evaluating contact compatibility between asphaltic materials. It is generally used to determine compatibility between the saturant and coating used in the manufacture of prepared roofings.<sup>2</sup> Coating and saturant will be referred to, but comparable asphaltic materials may be tested where this test procedure seems applicable.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with 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.*

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>3</sup>

**E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves**

## 3. Summary of Test Method

3.1 A small drop of molten saturant is placed on the freshly talced surface of the coating, and compatibility is judged by the degree to which an oily ring develops in the talc surrounding the drop.<sup>2</sup>

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.02 on Steep Roofing Products and Assemblies.

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<sup>2</sup> This test determines only exudative incompatibility. For application of this procedure to determination of insudative incompatibility, see “Compatibility Between Bitumens—Exudation versus Insudation,” by Oliensis, G. L., *Materials Research and Standards*, Vol 1, No. 9, September 1961, p. 723.

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## 4. Significance and Use

4.1 This test method assesses the degree to which asphalts interact with one another. It can indicate possible future problems, especially blistering, in a roofing product if incompatible asphalts are in contact in the product.

## 5. Apparatus

5.1 *Container*, lid of 85-g [3-oz] ointment box, or equivalent container.

5.2 *Analytical Balance*, having an accuracy of  $\pm 1.0$  mg.

5.3 *Sieve* 45- $\mu$ m (No. 325). Detailed requirements for these sieves are given in Specification **E11**.

5.4 *Dropping Device*, a fine wire 1.0 mm [0.04 in.] in diameter.

5.5 *Oven*, constant-temperature, capable of maintaining the test temperature within  $\pm 1.0^\circ\text{C}$  [ $\pm 1.8^\circ\text{F}$ ].

5.6 *Small Scale*, graduated in 0.1 mm divisions.

5.7 *Magnifying Glass or Stereo Microscope*, approximate minimum of 4 $\times$ .

5.8 *Talc*, pure, of the soapstone variety, ground so that at least 70 % passes the 45- $\mu$ m (No. 325) sieve, and oven-dried at  $110^\circ\text{C}$  [ $230^\circ\text{F}$ ].

NOTE 1—When this test method is being used in purchase specifications, both the purchaser and the seller shall use the same talc. Talc from Luzenac America, Inc.<sup>4</sup> has been found to be suitable for this test.

## 6. Procedure

6.1 Melt a portion of the coating at the minimum temperature required to render it fluid, stirring with the fine wire to eliminate bubbles, and pour it into the clean 85-g [3 oz] tin lid to a thickness of 3.0 to 6.0 mm [ $\frac{1}{8}$  to  $\frac{1}{4}$  in.]. Pour carefully, so as to provide a substantially smooth surface free of bubbles and other surface blemishes. After the coating material has cooled, determine the weight and surface area of the filled container.

<sup>4</sup> The sole source of supply known to the committee at this time is the Luzenac America, Inc., 9000 East Nichols Avenue, Englewood, CO, 80112. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,<sup>1</sup> which you may attend.



6.2 Make a preliminary dusting of talc by covering the coating surface with talc and removing the excess, nonadherent dust by inverting the container and dropping it approximately 25 mm [1 in.] onto the table top.

6.3 Make a final application of talc through the 45- $\mu$ m (No. 325) sieve, held 20 to 25 mm [ $\frac{3}{4}$  to 1 in.] above the surface of the coating, by gently shaking or tapping the sieve until a smooth, uniform film of talc, weighing  $0.004 \text{ g} \pm 10 \%$  per square centimetre, has been applied.

6.4 Place 3 drops of molten saturant, each about  $3.0 \pm 0.5 \text{ mm}$  [ $\frac{1}{8} \pm \frac{1}{64}$  in.] in diameter, on the talced surface of the coating. Form the drops by plunging the wire into the molten saturant and, after the excess has drained off, allowing suitably sized drops to fall on the talc from a sufficient height to form substantially spherical drops.

6.5 Place the prepared specimen in the test oven, so regulated as to maintain the specimen at the recommended test temperature, within  $\pm 1.0^\circ\text{C}$  [ $\pm 1.8^\circ\text{F}$ ], for 72 h (**Note 2**). After cooling, examine the specimen and measure any oily ring formed around the periphery of the drop, recording its width to

the nearest 0.1 mm. Measure the width from the line of contact of talc and drop to the outer limit of the oil ring.

**NOTE 2**—The recommended test temperature for roofing materials is  $50^\circ\text{C}$  [ $122^\circ\text{F}$ ], but this may be altered to accommodate variations in the bitumens being tested, for example, when determining compatibility of sealants, higher temperatures are appropriate.

## **7. Report**

7.1 Report the results of the compatibility test as the width in millimetres of the ring developed in the specified test temperature.

## **8. Precision and Bias**

8.1 *Repeatability*— Duplicate results by the same operator should not differ by more than 0.1 mm.

8.2 *Reproducibility*— Results between laboratories should be reproducible within 0.2 mm.

## **9. Keywords**

9.1 asphaltic materials; coating asphalt; compatibility; contact; oliensis test; saturant asphalt

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