



Standard Test Method for Oil Migration or Plasticizer Bleed-Out of Preformed Tape Sealants¹

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1. Scope

1.1 This test method covers a laboratory procedure that can be used to determine the oil migration or plasticizer bleed-out of preformed tape sealants.

1.2 The values stated in acceptable metric units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The subcommittee with jurisdiction is not aware of any similar ISO 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.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 717 Terminology of Building Seals and Sealants²

D 2203 Test Method for Staining from Sealants²

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

3. Terminology

3.1 *Definitions*—The definitions of the following terms used in this test method are found in Terminology C 717: preformed tape sealant, sealant.

4. Summary of Test Method

4.1 The preformed tape sealant to be tested is placed on filter paper. The specimen is heat aged and examined for migration into the filter paper.

5. Significance and Use

5.1 Preformed tape sealants are tacky, deformable solids that are used under compression between two substrates in a variety of sealing applications. In general, oil migration or

plasticizer bleed-out is not desirable. However, in some limited instances, a controlled amount of plasticizer migration is sometimes desired in order to improve the penetration of the tape into the interstices of porous substrates. This test method is designed to indicate whether or not a preformed tape sealant exhibits oil or plasticizer migration and, if so, to what extent.

6. Apparatus

6.1 *Vented Air Circulating Oven*, that complies with Specification E 145 and is capable of aging samples at $70 \pm 2^\circ\text{C}$ ($158 \pm 3.6^\circ\text{F}$) or $100 \pm 2^\circ\text{C}$ ($212 \pm 3.6^\circ\text{F}$).

6.2 *Filter Paper*,⁴ six sheets, high-grade, rapid, 76 mm (3 in.) in diameter.

6.3 *Weight*, 1 kg (2.2 lb).

7. Sampling

7.1 Select a fresh roll of preformed tape sealant at least 13 mm (0.5 in.) wide and 3 mm (0.125 in.) thick. Remove a section of preformed tape sealant approximately 61 cm (2 ft) long from the roll and discard it.

8. Test Specimens

8.1 Prepare duplicate test specimens by cutting short lengths of preformed tape sealant with the release paper still in place and plying them together to form a solid pad having the minimum surface dimensions of 38 mm (1.5 in.) by 38 mm and 3 mm (0.125 in.) thick.

8.2 Place each pad of preformed tape sealant on a piece of filter paper with the release paper side up.

8.3 Ensure adequate contact between the preformed tape sealant and the filter paper on each specimen by placing the 1-kg (2.2-lb) weight on top of the preformed tape sealant for 5 s.

9. Procedure

9.1 Place two additional pieces of filter paper under each of these test specimens.

¹ This test method is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.20 on General Sealant Standards.

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² *Annual Book of ASTM Standards*, Vol 04.07.

³ *Annual Book of ASTM Standards*, Vol 14.04.

⁴ This test method was based on the use of Whatman No. 1 filter paper. The sole source of supply of the apparatus known to the committee at this time is Whatman Inc., 9 Bridewell Place, Clifton, NJ 07014. 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,¹ which you may attend.

9.2 Place each of these tape-filter paper assemblies in an air circulating oven maintained at $70 \pm 2^\circ\text{C}$ ($158 \pm 3.6^\circ\text{F}$) and condition them for 3 weeks at this temperature. (Alternatively, samples can be conditioned for 1 week at $100 \pm 2^\circ\text{C}$ ($212 \pm 3.6^\circ\text{F}$).

9.3 Examine the filter papers under each specimen for evidence of oil migration or plasticizer bleed-out as soon as possible after removal from the oven. The filter paper should be viewed from the back side when held up to a light.

10. Report

10.1 Report the following information:

10.1.1 Identification of the preformed tape sealant, that is, the name, lot number, and any other identifying characteristics.

10.1.2 Oven aging conditions used for this test.

10.1.3 For each specimen, number of filter papers stained or that show evidence of oil migration.

10.1.4 For each specimen, to the nearest 0.3 mm (0.01 in.) the average distance of the stain from the edge of the pad of tape on the filter paper that was in direct contact with the pad of tape compound.

10.1.5 For each specimen, whether there is any evidence of stain, oil migration, or plasticizer bleed-out on the first filter paper directly under the pad of tape compound.

NOTE 1—Care should be taken not to confuse the changes in filter paper color or opacity due to being in direct contact with the tape with evidence of oil migration or plasticizer bleed-out.

10.2 A stain index can be determined for any one specimen by adding the average distance of the stain and the number of filter papers stained. (See Test Method D 2203.)

11. Precision and Bias

11.1 Two round robins were conducted using this procedure and a variation wherein ultraviolet lights were also used as a heat source. Different laboratories showed excellent comparative results when ranking the relative oil migration of tape samples using this type of procedure.

12. Keywords

12.1 oil migration; plasticizer bleed; preformed tape sealants; tapes; tape sealants

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