Designation: C771 – 14

Standard Test Method for Weight Loss After Heat Aging of Preformed Tape Sealants[1]

This standard is issued under the fixed designation C771; 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 a laboratory procedure for determining the weight loss after heat aging of preformed tape sealants.

NOTE 1—Test Method C681 describes a weight loss or volatility test for knife-grade glazing compounds.

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:*[2]

C681 Test Method for Volatility of Oil- and Resin-Based, Knife-Grade, Channel Glazing Compounds

C717 Terminology of Building Seals and Sealants

E145 Specification for Gravity-Convection and Forced-Ventilation Ovens

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method, see Terminology C717.

4. Summary of Test Method

4.1 The preformed tape sealant to be tested is placed on a tared metal plate and weighed. After heat aging, the specimen is weighed again. The difference in weight indicates the volatile content of the tape sealant.

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. Compared to other types of sealants, that is, gunnable sealants and caulks, sealing tapes are designed to be essentially 100 % solids materials. In use, these tapes are intended to give long service with minimal weight loss or volatility. This procedure will give a measure of the weight loss of a preformed tape sealant after a controlled period of exposure at an elevated temperature.

6. Apparatus

6.1 *Balance,* calibrated to weigh specimens to the nearest 0.01 g.

6.2 *Thin Plates of Aluminum or Other Metal,* two, not less than 51 mm (2 in.) wide by 152 mm (6 in.) long, for each tape to be tested.

6.3 *Vented Air Circulating Oven,* that complies with Specification E145 and is capable of aging samples at 100 ± 2°C (212 ± 3.6°F).

7. Sampling

7.1 Use a fresh roll of preformed tape sealant for testing. Remove a section of preformed tape sealant approximately 61 cm (2 ft) long from the roll and discard.

7.2 Remove release paper as required in order to fashion a suitable test specimen.

8. Procedure

8.1 For each preformed tape sealant to be tested, prepare two test specimens as follows:

8.1.1 Clean and dry two metal plates, weigh them, and record the tare weight for each to the nearest 0.01 g.

8.1.2 Cut the preformed tape sealant into 127-mm (5.0-in.) lengths. Ply strips together to form on each specimen plate a solid block of preformed tape sealant not less than 38 mm (1.5 in.) wide by 3 mm (0.12 in.) thick by 127 mm (5.0 in.) long.

8.1.3 Weigh the plates with the preformed tape sealant on them, subtract the tare weights of the plates; determine and record the initial net weight for each test specimen to the nearest 0.01 g.

[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 Test Methods.

Current edition approved Jan. 1, 2014. Published January 2014. Originally approved in 1974. Last previous edition approved in 2009 as C771 – 03 (2009). DOI: 10.1520/C0771-14.

[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.

8.2 Place both specimens in an air circulating oven preset to 100 ± 2°C (212 ± 3.6°F) and condition them for 1 week at this temperature.

8.3 After conditioning, remove the specimens from the oven and allow them to cool at room temperature for 1 h.

8.4 Reweigh each specimen to the nearest 0.01 g and record.

8.5 Subtract the respective tare weights of the plates from the weight of the specimens to determine the net weight of the tape specimen after heat aging, and record these weights to the nearest 0.01 g.

9. Calculation

9.1 For each specimen, determine the weight loss of the preformed tape sealant by subtracting the net weight of the preformed tape sealant after heat aging from its initial net weight.

9.2 Calculate the percent weight loss for each test specimen by dividing the weight loss by the initial net weight of the tape specimen times 100.

10. Report

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

10.2 Report the average of at least two weight loss calculations for each sample tested.

11. Precision and Bias

11.1 Interlaboratory round-robin testing of the weight loss of various sealing tapes has determined the 2 σ or 95 % confidence level of precision for the preformed tape sealant weight loss test.

11.2 The interlaboratory or multioperator precision for preformed tape sealants that show less than 3 % total weight loss is ±0.5 %.

11.3 The interlaboratory or multioperator precision for preformed tape sealants that show greater than 3 % total weight loss is ±1.0 %.

12. Keywords

12.1 preformed tape sealants; tapes; tape sealants; weight loss; weight loss after heat aging