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Standard Test Method for Effects of Heat Aging on Weight Loss, Cracking, and Chalking of Elastomeric Sealants¹

This standard is issued under the fixed designation C 792; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers a laboratory procedure for determining the effects of heat aging on weight loss, cracking, and chalking of cured-in-place elastomeric joint sealants (single- and multicomponent) for use in building construction.

1.2 *This standard does not purport to address all of the safety problems, 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.*

1.3 There is no known ISO equivalent to this test method.

2. Referenced Documents

2.1 *ASTM Standards:*²

C 717 Terminology of Building Seals and Sealants

3. Terminology

3.1 *Definitions*—See Terminology C 717 for definitions of the following terms used in this test method: compound, elastomeric, non-sag sealant, sealant, and self-leveling sealant.

4. Summary of Test Method

4.1 Three sealant specimens are spread on thin aluminum plates and, after determining net weights of sealant, are cured for 7 days at $23 \pm 2^\circ\text{C}$ ($74 \pm 3.6^\circ\text{F}$) and $50 \pm 5\%$ relative humidity. Immediately following this initial cure time two specimens are exposed in a forced-draft oven maintained at $70 \pm 2^\circ\text{C}$ ($158 \pm 3.6^\circ\text{F}$) for 21 days. At the end of this exposure the percentage weight loss of the sealant is determined and examination is made for presence of cracks and chalking.

5. Significance and Use

5.1 Weight loss through volatilization of components of a sealant in a building joint may affect sealant appearance because of shrinkage and sealant performance because of the loss of functional sealant components. Exposure to high-temperature environments will accelerate the loss of volatiles.

5.2 This test method measures weight loss. It can be used in combination with a knowledge of sealant density to estimate shrinkage. In addition, when compared to sealant theoretical weight solids, it provides an estimate of the extent to which functional sealant components can be volatilized when exposed to high service temperatures. Substantial losses of this type may help predict early failures in durability. Also, development of cracks or chalking, or both, lessens sealant service life. However, a sealant that develops no cracks or chalking, or low weight loss in this test method, does not necessarily assure good durability.

6. Apparatus

6.1 *Forced-Draft Oven*, controlled at $70 \pm 2^\circ\text{C}$ ($158 \pm 3.6^\circ\text{F}$).

6.2 *Balance*, sensitive to 0.01 g.

6.3 *Rectangular Brass Frame*, with inside dimensions 130 by 40 by 6.4 mm (5 by 1½ by ¼ in.).

6.4 *Aluminum Plates*, three, each 152 by 80 by 0.6 to 1.6 mm (24 to 16 gage).

¹ This test method is under the jurisdiction of ASTM Committee E-24/C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.20 on General Test Methods.

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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.