



Designation: C1258 – 08 (Reapproved 2013)

# Standard Test Method for Elevated Temperature and Humidity Resistance of Vapor Retarders for Insulation<sup>1</sup>

This standard is issued under the fixed designation C1258; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the determination of the aging resistance of flexible low permeance vapor retarders for thermal insulation as classified in Specification C1136. Water vapor permeance measurement and visual inspection after exposure at elevated temperature and humidity are used to assess vapor retarder response.

1.2 Typical vapor retarders applicable to this test method that are intended for indoor use include foil-scrim-kraft laminates, metallized polyester-scrim-kraft laminates, treated fabrics, treated papers, films, foils, or combinations of these materials that may comprise a vapor retarder material. This test method is not intended for assessment of the liquid-applied coatings, sealants, or mastics commonly used with insulation products.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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:*<sup>2</sup>

C168 Terminology Relating to Thermal Insulation

C1136 Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation

E96/E96M Test Methods for Water Vapor Transmission of Materials

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.33 on Insulation Finishes and Moisture.

Current edition approved Sept. 1, 2013. Published January 2014. Originally approved in 1994. Last previous edition approved in 2008 as C1258-08. DOI: 10.1520/C1258-08R13.

<sup>2</sup> 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.

## 3. Terminology

3.1 Terminology C168 shall be considered as applying to the terms used in this specification.

## 4. Summary of Test Method

4.1 The vapor retarders are subjected to accelerated aging via elevated temperature and humidity at 120°F (49°C) and 95 % relative humidity for a period of 28 days, then visually inspected for corrosion (if applicable), delamination, or other degradation. Water vapor permeance in accordance with Test Methods E96/E96M is measured after humid aging.

## 5. Significance and Use

5.1 On sub-ambient temperature systems, humid ambient conditions cause a vapor driving force toward the insulation which, if not retarded, is detrimental to the insulation's thermal resistance. Therefore a vapor retarder should resist degradation. Degradation in this test method is induced by elevated temperature and humidity conditions.

## 6. Apparatus

6.1 *Environmental Chamber*, capable of maintaining  $120 \pm 2^\circ\text{F}$  ( $49 \pm 1^\circ\text{C}$ ) and  $95 \pm 2\%$  relative humidity, using distilled or deionized water as the humidity source. The chamber shall be of the air-circulating variety.

6.2 *Lighted Box in a Darkened Room*—A lighted box is an enclosure having five opaque sides with one transparent glass or plastic viewing side. The box is illuminated using an incandescent lightbulb. The viewing area shall be slightly smaller than the vapor retarder specimen so that holes or degradation caused by aging are readily visible.

6.3 *Cotton Gloves*.

6.4 *Cardboard Overhead Transparency Frames or Equivalent*.

6.5 *Stainless Steel Staples*.

6.6 *Glass or Stainless Steel Rods*.

## 7. Test Specimens

7.1 From each sample cut four specimens that are large enough to acquire water vapor permeance test specimens after