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AMERICAN SOCIETY FOR TESTING AND MATERIALS  
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## **Standard Specification for Reflective Insulation for Building Applications<sup>1</sup>**

This standard is issued under the fixed designation C 1224; 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 specification covers the general requirements and physical properties of reflective insulations for use in building applications. These insulation materials consist of one or more low emittance surfaces, such as metallic foil or metallic deposits, unmounted or mounted on substrates. Reflective insulations derive their thermal performance from surfaces with an emittance of 0.1 or less, facing enclosed air spaces.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

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:**

- C 168 Terminology Relating to Thermal Insulating Materials<sup>2</sup>
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus<sup>2</sup>
- C 236 Test Method for Steady State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box<sup>2</sup>
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots<sup>2</sup>
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus<sup>2</sup>
- C 727 Practice for Use and Installation of Reflective Insulation in Building Constructions<sup>2</sup>
- C 976 Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box<sup>2</sup>
- C 1338 Test Method for Determining Fungi Resistance of Insulation Materials and Facings<sup>2</sup>
- C 1363 Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus<sup>2</sup>

C 1371 Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emis-someters<sup>2</sup>

D 3310 Test Method for Determining Corrosivity of Adhe-sive Materials<sup>3</sup>

E 84 Test Method for Surface Burning Characteristics of Building Materials<sup>4</sup>

E 96 Test Methods for Water Vapor Transmission of Mate-rials<sup>2</sup>

#### **2.2 Other Standard:**

TAPPI Standard T 512 om-86, Creasing of Flexible Pack-aging Material Paper Specimens for Testing<sup>5</sup>

### **3. Terminology**

3.1 *Definitions*—Terminology C 168 shall apply to the terms in this specification.

#### **3.2 Definitions of Terms Specific to This Standard:**

3.2.1 *reflective insulation*—thermal insulation consisting of one or more low emittance surfaces, bounding one or more enclosed air spaces.

### **4. Ordering Information**

4.1 Prior to purchase, for sampling and acceptance proce-dures, Criteria C 390 can be agreed upon between the pur-chaser and the manufacturer.

4.2 Specify the required thermal resistance by the direction of the heat flow.

4.3 Specify the width, depth, and total area to be insulated.

4.4 Specify special markings, if required.

### **5. Materials and Manufacture**

5.1 Reflective insulation materials shall consist of low emittance surface(s) in combination with substrates and adhe-sives required to meet the specified thermal performance and physical properties.

### **6. Physical Properties Requirements**

6.1 Low emittance materials shall have an emittance of 0.1 or less, as determined in accordance with Test Method C 1371.

6.2 *Water Vapor Transmission*—If the reflective insulation is to serve as a vapor retarder, the permeance of the material

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.06.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 15.06.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 04.07.

<sup>5</sup> Available from TAPPI, Technology Park/Atlanta, P.O. Box 105113, Atlanta, GA 30348.