



Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation¹

This standard is issued under the fixed designation C 921; 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 practice lists significant properties of thermal insulation jacketing materials and test methods for determining them.

1.2 This practice applies to jacketing materials applied over thermal insulation for piping, ducts, and equipment operating at temperatures from -40 to 1200°F (-40 to 649°C), ambient temperatures from -60 to 130°F (-51 to 54°C), and surface temperatures from -60 to 200°F (-51 to 93°C).

1.3 This practice includes jacketing materials used over thermal insulation whether the insulation be in the form of rigid pipe or board, semirigid or blanket, or field applied materials that are self-supporting, including cements.

1.4 This practice does not include covers or other retaining walls that contain loose fill, other nonsupporting insulation materials, or conduits or containers for buried insulation systems.

1.5 This practice does not include mastics and coatings and their reinforcements.

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

1.7 *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:

A 167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip²

A 366/A366M Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality²

B 209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate³

¹ This practice is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.40 on Insulation Systems.

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² *Annual Book of ASTM Standards*, Vol 01.03.

³ *Annual Book of ASTM Standards*, Vol 02.02.

C 168 Terminology Relating to Thermal Insulating Materials⁴

C 835 Test Method for Total Hemispherical Emittance of Surfaces from 20 to 1400°C ⁴

D 777 Test Methods for Flammability of Treated Paper and Paperboard⁵

D 781 Test Methods for Puncture and Stiffness of Paperboard, and Corrugated and Solid Fiberboard⁶

D 828 Test Method for Tensile Properties of Paper and Paperboard Using Constant-Rate-of-Elongation Apparatus⁷

E 84 Test Method for Surface Burning Characteristics of Building Materials⁸

E 96 Test Methods for Water Vapor Transmission of Materials⁴

2.2 *Military Standard:*
MIL-STD-810C Environmental Test Methods⁹

3. Terminology

3.1 *Definitions*—Terminology C 168 apply to the terms used in this practice.

4. Classification

4.1 *Type I—Vapor Barrier*—For use over insulation on pipes, ducts, or equipment operating at temperatures below ambient at least part of the time or wherever a vapor barrier is required.

4.2 *Type II—Water Vapor Permeable*—For use over insulation on pipes, ducts or equipment operating above ambient temperatures or wherever a vapor barrier is not required.

5. Materials and Manufacture

5.1 Jacketing materials may be composed of a single material or a lamination of several components. The material may be in the form of rolls or sheets or preformed to fit the surface to which they are to be applied. The materials may be applied

⁴ *Annual Book of ASTM Standards*, Vol 04.06.

⁵ Discontinued. See 1980 *Annual Book of ASTM Standards*, Part 20.

⁶ Discontinued. See 1984 *Annual Book of ASTM Standards*, Vol 15.09.

⁷ *Annual Book of ASTM Standards*, Vol 15.09.

⁸ *Annual Book of ASTM Standards*, Vol 04.07.

⁹ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.