



**Designation: C592 – 16 C592 – 22**

## **Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type)<sup>1</sup>**

This standard is issued under the fixed designation C592; 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.

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

### **1. Scope**

1.1 This specification covers the composition, dimensions, and physical properties of mineral fiber (rock, slag, or glass) metal mesh covered and industrial type blanket and blanket-type pipe insulation (typically on 24 in. (610 mm) diameters or larger)). Its use is for cooled surfaces at temperatures operating below ambient to 0°F (–18°C) and on heated surfaces on expansion joints to large diameter vessels and tanks operating at temperatures up to 1200°F (649°C). Specific applications outside the actual use temperatures shall be agreed upon between the manufacturer and purchaser.

1.2 For satisfactory performance, properly installed protective vapor retarders or barriers shall be used on below ambient temperature applications to reduce movement of moisture/water vapor through or around the insulation towards the colder surface. Failure to use a vapor retarder can lead to insulation and system damage. Refer to Practice C921 to aid material selection. Although vapor retarder properties are not part of this specification, properties required in Specification C1136 are pertinent to applications or performance.

1.3 The orientation of the fibers within the blanket is primarily parallel to the heated surface. This specification does not cover fabricated pipe and tank wrap insulation where the insulation has been cut and fabricated to provide fiber orientation that is perpendicular to the heated surface.

1.4 This standard does not purport to provide the performance requirements of hourly-rated fire systems. Consult the manufacturer for the appropriate system.

1.5 See Supplementary Requirements for modifications to sections in this standard only when specified by purchaser in the contract or order from the U.S. Military specifications utilized by the U.S. Department of Defense, Department of the Navy, and the Naval Systems Command.

1.6 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.

1.7 *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, health, and environmental practices and determine the applicability of regulatory requirements/limitations prior to use.*

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.23 on Blanket and Loose Fill Insulation.

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1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

- C167 Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations
- C168 Terminology Relating to Thermal Insulation
- C177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
- C356 Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat
- C390 Practice for Sampling and Acceptance of Thermal Insulation Lots
- C411 Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
- C447 Practice for Estimating the Maximum Use Temperature of Thermal Insulations
- C518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- C665 Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
- C680 Practice for Estimate of the Heat Gain or Loss and the Surface Temperatures of Insulated Flat, Cylindrical, and Spherical Systems by Use of Computer Programs
- C795 Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel
- C921 Practice for Determining the Properties of Jacketing Materials for Thermal Insulation (Withdrawn 2021)<sup>3</sup>
- C1045 Practice for Calculating Thermal Transmission Properties Under Steady-State Conditions
- C1058 Practice for Selecting Temperatures for Evaluating and Reporting Thermal Properties of Thermal Insulation
- C1104/C1104M Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation
- C1114 Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus
- C1136 Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation
- C1304 Test Method for Assessing the Odor Emission of Thermal Insulation Materials
- C1335 Test Method for Measuring Non-Fibrous Content of Man-Made Rock and Slag Mineral Fiber Insulation
- C1338 Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- C1617 Practice for Quantitative Accelerated Laboratory Evaluation of Extraction Solutions Containing Ions Leached from Thermal Insulation on Aqueous Corrosion of Metals
- E84 Test Method for Surface Burning Characteristics of Building Materials
- E136 Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C

### 2.2 Other Document:

- CAN/ULC-S102 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies<sup>4</sup>

## 3. Terminology

3.1 Terminology C168 shall be the terms used in this specification.

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

3.2.1 *mean temperature*—the sum of the cold surface temperature and the hot surface temperature divided by two.

3.2.2 *metal-mesh covered blanket*—mineral fiber thermal insulation held together by metal-mesh facings on one or both sides with heat-resistant metal ties attached through the blanket from one face to the other.

3.2.3 *metal-mesh covered blanket-type pipe*—mineral fiber thermal insulation sized to fit around a large Nominal Pipe Size (NPS) and held together by metal-mesh facings on one or both sides with heat-resistant metal ties attached through the blanket from one face to the other.

3.2.4 *industrial type (faced and unfaced) blanket*—mineral fiber thermal insulation without a metal mesh covering.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

<sup>4</sup> Available from Underwriters Laboratories (UL), 2600 N.W. Lake Rd., Camas, WA 98607-8542, <http://www.ul.com>.