



Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications¹

This standard is issued under the fixed designation C 553; 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 specification covers the classification, composition, physical properties, and dimensions of mineral fiber (rock, slag, or glass) blanket intended for use as thermal insulation on surfaces at temperatures below ambient or above ambient up to 1200°F (649°C). For specific applications, the actual temperature limit shall be agreed upon between the supplier and the purchaser.

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

1.3 For satisfactory performance, properly installed protective vapor retarders must be used in low temperature (below ambient) applications to prevent movement of water vapor through or around the insulation towards the colder 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 The values stated in inch-pound units shall be regarded as the standard. The System International (SI) equivalents of inch-pound units are given in parentheses and are for information only and are approximate.

1.6 *This standard does not purport to address all of the safety concerns 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 167 Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations²

C 168 Terminology Relating to Thermal Insulation²

C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus²

C 390 Practice for Sampling and Acceptance of Preformed Thermal Insulation Lots²

C 411 Test Method for Hot-Surface Performance of High-Temperature Thermal Insulations²

C 447 Practice for Estimating the Maximum Use Temperature of Thermal Insulations²

C 518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus²

C 665 Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing²

C 680 Practice for Determination of Heat Gain or Loss and the Surface Temperatures of Insulated Pipe and Equipment Systems by the Use of a Computer Program²

C 1045 Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements²

C 1058 Practice for Selecting Temperatures for Evaluating and Reporting Thermal Properties of Thermal Insulation²

C 1101/C 1101M Test Method for Classifying the Flexibility or Rigidity of Mineral Fiber Blanket and Board Insulation²

C 1104/C 1104M Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation²

C 1114 Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus²

C 1136 Specification for Flexible Low Permeance Vapor Retarders for Thermal Insulations²

C 1304 Test Method for Assessing the Odor Emission of Thermal Insulation Materials²

C 1335 Test Method for Measuring the Non-Fibrous Content of Man-Made Rock and Slag Mineral Fiber Insulations²

E 84 Test Method for Surface Burning Characteristics of Building Materials³

2.2 Other Referenced Documents:

CAN/ULC-S102-M88 Standard Method of Test for Surface

¹ 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.

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² Annual Book of ASTM Standards, Vol 04.06.

³ Annual Book of ASTM Standards, Vol 04.07.