



Standard Specification for Vermiculite Loose Fill Thermal Insulation¹

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

1. Scope

1.1 This specification covers the composition and physical properties of expanded or exfoliated vermiculite loose fill insulation. The specification also includes the testing procedures by which the acceptability of the material may be determined. These testing procedures deal primarily with material performance in the temperature range associated with the thermal envelope of buildings; however, the commercially usable temperature range for this insulation is from –119 to 850°F (–84 to 454°C). For specialized applications, refer to manufacturer's instructions.

1.2 The specification also covers the composition and properties of vermiculite that has been surface-treated to produce water repellency for installations where liquid moisture may be a factor.

1.3 When the installation or use of thermal insulation materials, accessories, and systems may pose safety or health problems, the manufacturer shall provide the user with appropriate current information regarding any known problems associated with the recommended use of the company's products, and shall also recommend protective measures to be employed in their safe utilization.

1.4 The following safety hazards caveat pertains only to the test methods portion, Section 9, of this specification: *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.* For specific hazard statements, see Section 12.

2. Referenced Documents

2.1 ASTM Standards:

C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates²

C 168 Terminology Relating to Thermal Insulation³

C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus³

C 390 Practice for Sampling and Acceptance of Preformed Thermal Insulation Lots³

C 518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus³

C 520 Test Methods for Density of Granular Loose Fill Insulations³

E 84 Test Method for Surface Burning Characteristics of Building Materials⁴

E 136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C⁴

3. Terminology

3.1 The terms used in this specification are defined in Terminology C 168.

4. Classification

4.1 Vermiculite insulation shall be specified by two type designations and five classes, as follows:

4.1.1 *Vermiculite Loose Fill Insulation—Type I*—The product that results from the expanding or exfoliating of natural vermiculite ore by grading and heating to meet the requirements of this specification.

4.1.2 *Vermiculite Loose Fill Insulation—Type II*—Expanded vermiculite that has been surface-treated to produce water repellency and limit absorption of moisture from both liquid and vapor phase.

4.1.3 Vermiculite loose fill insulation has five grade designations established by range of particle size distribution as shown in Table 1.

5. Ordering Information

5.1 All purchase orders should designate both type and grade of insulation desired. If type designation is omitted, Type I will be furnished. The type and grade classifications in this specification differ from the classifications in earlier issues.

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 Insulation.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.06.

⁴ *Annual Book of ASTM Standards*, Vol 04.07.