



Designation: C 1086 – 96

Standard Specification for Glass Fiber Felt Thermal Insulation¹

This standard is issued under the fixed designation C 1086; 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 glass fiber unsupported needled felt binder-free insulation for thermal insulation. This material is used as the thermal insulation component in the fabrication of insulation systems for use on machinery and equipment, such as steam turbines, boilers, boiler feed pumps, and piping at temperatures up to 1200°F (650°C).

1.2 *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.*

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

NOTE 1—This standard is a consensus standard to provide a substitute for military specification MIL-I-16411E.

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 Insulating Materials²
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus²
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots²
- C 411 Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation²
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus²
- 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
D 578 Specification for Glass Fiber Strands³

2.2 U.S. Federal Standard:

FED-STD-191 Textile Test Methods⁴

2.3 U.S. Military Standards:

MIL-I-16411E Insulation Felt, Thermal, Glass Fiber⁴

MIL-STD-1623 Fire Performance Requirements and Approved Specifications for Interior Finish Materials and Furnishings (Naval Shipboard Use)⁴

3. Terminology

3.1 Definitions:

3.1.1 Terminology C 168 shall be considered as applying to the terms used in this specification.

3.1.2 Definitions in Specification D 578 shall be considered as applying to the terms used in defining glass fiber composition code, process, and fiber diameter.

4. Classification

4.1 Thermal insulation shall be glass fiber, unsupported needled felt insulation, for use on surfaces with temperatures up to 1200°F (650°C).

5. Ordering Information

5.1 The purchase order or contract shall specify the following:

5.1.1 Quantity of each thickness (10.1).

5.1.2 Any special requirements for nonstandard sizes or dimensions (10.2 and 10.3).

5.1.3 Any requirements for certification (19.1).

5.1.4 Any special requirements for supplementary testing requirements (9.1).

6. Materials and Manufacture

6.1 The material shall consist of 100 % glass fiber yarns needled into insulation felts without the use of binders. No organic fibers and no glass or mineral shot shall be included in the product. The insulation felt may be composed of laminates formed without the use of binders. The glass fibers shall meet the designation C, Continuous Filament Yarns, in accordance with Specification D 578 (see Note 2).

¹ This specification is under the jurisdiction of ASTM Committee C-16 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 04.06.

³ Annual Book of ASTM Standards, Vol 07.01.

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