



Designation: **C686 – 90 (Reapproved 2011)<sup>ε1</sup> C686 – 17**

## Standard Test Method for Parting Strength of Mineral Fiber Batt- and Blanket-Type Insulation<sup>1</sup>

This standard is issued under the fixed designation C686; 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.

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<sup>ε1</sup> NOTE — 1.2 was editorially inserted in October 2011.

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### 1. Scope

1.1 This test method covers evaluation of strength in tension on mineral fiber batt- and blanket-type insulation products. It is useful for determining the comparative tensile properties of these products, specimens of which cannot be held by the more conventional clamp-type grips. This is a quality control method, and the results ~~should~~shall not be used for design purposes. It is not ~~normally used suitable~~ for board-type products.

1.2 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.

1.3 *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.*

1.4 *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](#)

[E171 Practice for Conditioning and Testing Flexible Barrier Packaging](#)

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

### 3. Significance and Use

3.1 Tensile strength is a fundamental property associated with mineral fiber manufacture since it is influenced by the type of fiber, the deposition of fiber, the type and the amount of bonding agent, and the method of curing the resin to form a bonded insulation product. The test is an indication of product integrity and the ability of the product to be successfully handled and applied in the field.

### 4. Apparatus

4.1 *Constant Rate of Traverse Tension Test Unit* of 50-lbf (223-N) capacity calibrated in increments of 0.1 lbf (0.4 N) and having a moving head speed of 12 in. (305 mm)/min or equivalent (see Fig. 1).

4.2 *Post-Type Grips* with 1-in. (25.4-mm) diameter rods (see Fig. 2).

4.3 *Die* for cutting specimens (see Fig. 3). The O-ring specimen dimensions are 3 by 4.75 in. (76 by 120.6 mm) in outside diameter, and 1 by 2.75 in. (25 by 69.8 mm) in inside diameter (see Fig. 4).

4.4 *Balance* to weigh to an accuracy of 0.01 g.

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<sup>1</sup> This test method is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.32 on Mechanical Properties.

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

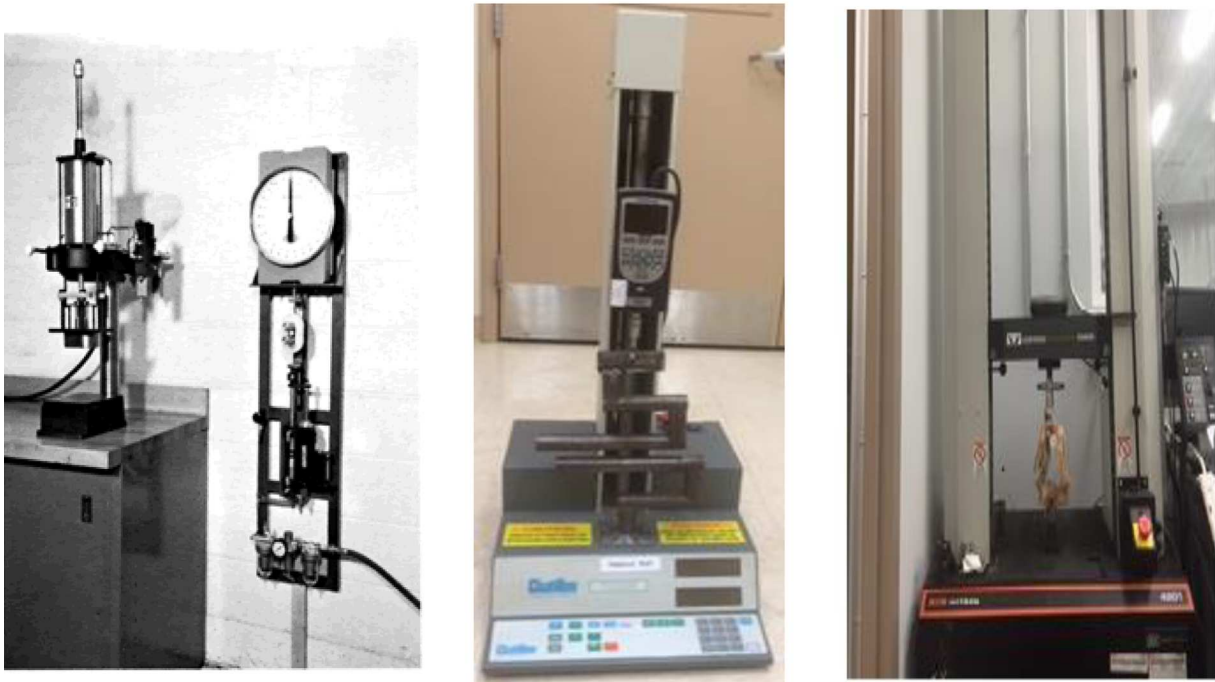


FIG. 1 Tension Test Units

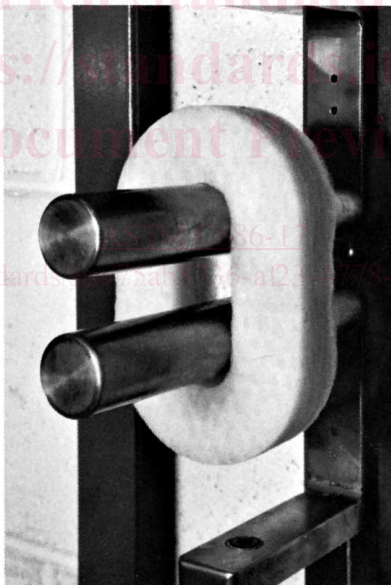


FIG. 2 Post-Type Grips

## 5. Test Specimen

5.1 The test specimen shall consist of the entire O-ring cut from the full thickness of the product to be tested.

5.2 Specimens shall not be cut from a product that varies in thickness  $\pm 5\%$  from normal when tested in accordance with Test Method C167.

5.3 No specimen shall be tested that exhibits any obvious damage in the insulation or that shows delamination within the insulation thickness.

## 6. Conditioning

6.1 Condition the specimens for 1 h in a room maintained at atmospheric conditions of  $73.4 \pm 1.8^\circ\text{F}$  ( $23 \pm 1^\circ\text{C}$ ) and  $50 \pm 2\%$  relative humidity in accordance with Specification E171.