



Standard Test Methods of Testing Cellular Glass Insulation Block¹

This standard is issued under the fixed designation C 240; 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 These test methods cover the testing of cellular glass insulation block for density, water absorption, compressive strength, flexural strength at ambient temperature; preparation for chemical analysis; and thermal conductivity measurements.

1.2 The values stated in SI are generally to be regarded as the standard. The SI dimensions are to be used for material supplied in metric sizes. The inch dimensions are to be used for material supplied in inch sizes.

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.*

2. Referenced Documents

2.1 ASTM Standards:

- C 165 Test Method for Measuring Compressive Properties of 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 203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation²
- C 303 Test Method for Density of Preformed Block-Type Thermal Insulation²
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots²
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus²
- C 871 Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions²
- D 226 Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing³

2.2 ISO Standard:

ISO 3951 Sampling Procedure and Charts for Inspection by Variables for Percent Defective⁴

2.3 Military Standard:

MIL-I-24244 Specification Insulation Materials with Special Corrosion, Chloride, and Fluoride Requirements⁵

2.4 Other Standard:

NRC 1.36 Nonmetallic Thermal Insulation for Austenitic Stainless Steel⁶

3. Terminology

3.1 *Definitions*—Terminology C 168 shall be considered as applying to the terms considered in these test methods.

4. Significance and Use

4.1 From a general standpoint, these test methods outline the particular points which have to be taken into account when applying ASTM standard test methods to the case of cellular glass insulating block.

5. Test Methods

5.1 *General Sample Preparation*—All tests have to be run on dry specimens. In case of need, the sample must be unpacked and stored in a dry place in such a way that all surfaces are exposed to the ambient air for at least one day before testing.

5.2 *Density*—Determine the density in accordance with Test Method C 303. Preferably, the density shall be measured on a full block, 450 by 600 mm (18 by 24 in.) by full thickness.

5.2.1 It should be noted that density is interesting as such for calculation of insulated equipment load and because it has some influence on the other important properties of cellular glass. But it should not be considered in itself as a criterion for acceptance in the case of cellular glass.

5.3 Water Absorption:

5.3.1 *Scope*—This test method covers the determination of water absorption of cellular glass insulating blocks by measuring the amount of water retained as a result of complete immersion for a prescribed time interval. Surface blotting is used to correct for the water absorbed on the cut surface cells.

¹ These methods are under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and are the direct responsibility of Subcommittee C16.32 on Mechanical Properties.

Current edition approved September 10, 1997. Published June 1998. Originally published as C 240-50 T. Last previous edition C 240-91.

² *Annual Book of ASTM Standards*, Vol 04.06.

³ *Annual Book of ASTM Standards*, Vol 04.04.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁵ Available from Standardization Documents Order Desk, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094.

⁶ Available from Director of Regulatory Standards, US Atomic Energy Commission, Washington, DC 20545.