



Designation: C155 – 97 (Reapproved 2022)

Standard Classification of Insulating Firebrick¹

This standard is issued under the fixed designation C155; 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 classification covers heat-insulating material known as insulating firebrick. This material is suitable for lining certain kinds of industrial furnaces.

NOTE 1—Insulating materials for use below 1000 °F (538 °C) are covered² by ASTM Committee C16 on Thermal Insulation.

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 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:*²

[C134 Test Methods for Size, Dimensional Measurements, and Bulk Density of Refractory Brick and Insulating Firebrick](#)

[C210 Test Method for Reheat Change of Insulating Firebrick](#)

3. Significance and Use

3.1 This classification establishes an orderly grouping of insulating firebrick to provide group identifications for use by those producing or purchasing these materials. The group

¹ This classification is under the jurisdiction of ASTM Committee C08 on Refractories and is the direct responsibility of Subcommittee C08.92 on The Joseph E. Kopanda Subcommittee for Editorial, Terminology and Classification.

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² 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.

identification number is not meant to specifically designate the maximum service temperature, although the number times 100 does approximate the temperature (in degrees Fahrenheit) to be used to check the reheat change and can be used as a guide for relative temperature stability. The bulk density limits the weight per unit volume for any group as sold, but is not meant to be used for detailed engineering calculations.

4. Basis of Classification

4.1 The classification of insulating firebrick in accordance with [Table 1](#) is based on bulk density (weight per cubic foot) and the behavior in the reheat change test conducted at the specified temperature.

5. Test Methods

5.1 The properties enumerated in this classification shall be determined in accordance with the following ASTM test methods:

5.1.1 *Bulk Density*—Test Methods [C134](#).

5.1.2 *Reheat Change*—Test Method [C210](#). For the purpose of this classification, the percentage of reheat change shall be obtained from only the 9 in. (228 mm) dimension of the test brick.

6. Retests

6.1 Because of variables resulting from sampling and the lack of satisfactory reproducibility in tests conducted by different laboratories, the material may be resampled and retested when requested by either the manufacturer or the purchaser. This may apply in instances when the first test results do not conform to the requirements prescribed in this classification. The final results to be used shall be the average of at least two sets of results, each of which has been obtained by following in detail the specified testing procedures.

7. Keywords

7.1 bulk density; insulating firebrick; refractories; reheat change

TABLE 1 Grouping of Insulating Firebrick

Group No.	Reheat Change, Not More Than 2 % When Tested at °F (°C)	Bulk Density Not Greater Than lb/ft ³ (g/cm ³)
16	1550 (845)	34 (0.54)
20	1950 (1065)	40 (0.64)
23	2250 (1230)	48 (0.77)
26	2550 (1400)	54 (0.86)
28	2750 (1510)	60 (0.96)
30	2950 (1620)	68 (1.09)
32	3150 (1730)	95 (1.52)
33	3250 (1790)	95 (1.52)

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