



Designation: C 155 – 97

Standard Classification of Insulating Firebrick¹

This standard is issued under the fixed designation C 155; 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 C-16 on Thermal Insulation.

2. Referenced Documents

2.1 ASTM Standards:

C 134 Test Methods for Size, Dimensional Measurements, and Bulk Density of Refractory Brick and Insulating Firebrick³

C 210 Test Method for Reheat Change of Insulating Firebrick³

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 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.

¹ This classification is under the jurisdiction of ASTM Committee C08 on Refractories and is the direct responsibility of Subcommittee C 08.07 on Alumina, Silica, and Special Refractories.

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

³ *Annual Book of ASTM Standards*, Vol 15.01.

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)

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 C 134.

5.1.2 *Reheat Change*—Test Method C 210. 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