



Thermal Ceramics high temperature insulating firebrick are produced with unique processes. The bond developed is a ceramic bond that is formed by high temperature firing. This produces bricks that are very stable and strong at temperatures higher than 2600°F (1427°C).

**Features**

- High temperature insulating firebrick with use limits up to 3250°F (1788°C)
- Excellent strength and thermal stability
- Low heat storage
- High purity
- Excellent thermal conductivity

**Applications**

- Atmosphere furnace
- Forge furnaces
- Ethylene furnace sidewalls
- Ceramic kilns
- High temperature back-up insulation
- Carbon baking furnaces
- High temperature kiln linings
- Removable furnace doors

**Physical Characteristics**

Standard sizes\*      9" x 4½" x 2½" and 9" x 4½" x 3"  
(22.5 cm x 11.25 cm x 6.25 cm and  
22.5 cm x 11.25 cm x 7.5 cm)

\* Special sizes available upon request.

# High Temperature Insulating Firebrick

## Product Information

| Physical properties   | TC-26  | TC-26 HS | K-26   | JM-26  | JM-28  | JM-30  | Insalcor |
|---|--------|----------|--------|--------|--------|--------|----------|
| Recommended Hot Face use limit, °F  | 2600   | 2600     | 2600   | 2600   | 2800   | 3000   | 3250     |
| °C  | (1427) | (1427)   | (1427) | (1427) | (1538) | (1649) | (1788)   |
| Density, nominal  |        |          |        |        |        |        |          |
| lb/9" straight (kg)   | 2.8    | 3.3      | 2.3    | 2.9    | 3.2    | 3.8    | 4.6      |
|   | (1.2)  | (1.5)    | (1.04) | (1.3)  | (1.45) | (1.72) | (2.09)   |
| pcf (kg/m <sup>3</sup> )  | 48     | 57       | 40     | 50     | 55     | 65     | 82       |
|   | (769)  | (913)    | (641)  | (801)  | (881)  | (1041) | (1314)   |
| Modulus of rupture, psi (Mpa)   | 200    | 360      | 145    | 190    | 220    | 250    | 450      |
|   | (1.37) | (2.48)   | (1)    | (1.31) | (1.51) | (1.72) | (3.1)    |
| Cold crushing strength, psi (Mpa)   | 270    | 580      | 245    | 290    | 340    | 440    | 900      |
|   | (1.86) | (4)      | (1.7)  | (2)    | (2.35) | (3.03) | (6.2)    |
| Permanent linear shrinkage, % , after 24 hours                                |        |          |        |        |        |        |          |
| @ 2550°F (1400°C)   | -0.1   | -0.7     | -0.1   | -0.2   | -      | -      | -        |
| @ 2750°F (1510°C)   | -      | -        | -      | -      | -0.7   | -      | -        |
| @ 2950°F (1620°C)   | -      | -        | -      | -      | -      | -0.7   | -        |
| @ 3150°F (1732°C)   | -      | -        | -      | -      | -      | -      | +0.4     |
| Deformation under hot load, % @ 10 psi (0.07 Mpa)                             |        |          |        |        |        |        |          |
| 1½ hours @ 2200°F (1204°C)  | -0.2   | 0.1      | -0.2   | -0.2   | -0.1   | -      | -        |
| 1½ hours @ 2400°F (1315°C)  | -      | -        | -      | -      | -      | -0.3   | -        |
| 1½ hours @ 2640°F (1448°C)  | -      | -        | -      | -      | -      | -      | +0.1     |
| <b>Chemical Analysis, nominal, %</b>  |        |          |        |        |        |        |          |
| Alumina, Al <sub>2</sub> O <sub>3</sub>                                       | 47     | 44.7     | 48     | 60.4   | 67     | 69.9   | 77       |
| Silica, SiO <sub>2</sub>  | 48.6   | 49.9     | 38     | 36.1   | 30.5   | 28.1   | 21       |
| Ferric oxide, Fe <sub>2</sub> O <sub>3</sub>                                  | 0.7    | 0.6      | 0.4    | 0.4    | 0.3    | 0.3    | 0.4      |
| Titanium oxide, TiO <sub>2</sub>  | 1.3    | 1.6      | 0.9    | 1.0    | 0.9    | 1.2    | 0.6      |
| Calcium oxide, CaO  | 0.3    | 0.6      | 12.3   | 0.1    | 0.3    | 0.2    | 0.1      |
| Magnesium oxide, MgO  | 0.1    | 0.1      | 0.1    | 0.2    | -      | 0.1    | 0.1      |
| Alkalies, as Na <sub>2</sub> O and K <sub>2</sub> O                           | 2.0    | 2.5      | 0.3    | 1.8    | 1.0    | 0.2    | 0.3      |
| <b>Thermal Conductivity, BTU•in./hr•ft<sup>2</sup>•°F (w/m•k), ASTM C 201</b> |        |          |        |        |        |        |          |
| Mean temperature  |        |          |        |        |        |        |          |
| @ 500°F (260°C)   | 1.6    | 1.9      | 1.16   | 1.8    | 2.3    | 2.8    | 5.5      |
|   | (0.23) | (0.27)   | (0.17) | (0.26) | (0.33) | (0.40) | (0.79)   |
| @ 1000°F (538°C)  | 1.9    | 2.2      | 1.34   | 2.0    | 2.4    | 2.9    | 5.6      |
|   | (0.27) | (0.32)   | (0.19) | (0.29) | (0.34) | (0.42) | (0.80)   |
| @ 1500°F (815°C)  | 2.2    | 2.5      | 1.52   | 2.1    | 2.6    | 3.1    | 6.3      |
|   | (0.32) | (0.36)   | (0.22) | (0.30) | (0.37) | (0.45) | (0.91)   |
| @ 2000°F (1093°C)   | 2.6    | 2.8      | 1.74   | 2.3    | 2.7    | 3.3    | 7.6      |
|   | (0.37) | (0.40)   | (0.25) | (0.33) | (0.39) | (0.47) | (1.09)   |
| @ 2500°F (1371°C)   | -      | -        | 1.97   | -      | -      | -      | 9.2      |
|   | -      | -        | (0.28) | -      | -      | -      | (1.33)   |

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Thermal Ceramics office to obtain current information.

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