**Description**

The Insulation Range of Insulating Fire Brick (IFB) for applications where temperatures are 1100°C - 1650°C (2000°F - 3000°F).

The K® and JM™ IFB ranges, manufactured via cast process, are market leaders in applications such as Petrochemical and Ceramics where the ability to operate in environments above 1000°C (1800°F) is critical.

With low thermal conductivity, due to the unique manufacturing process, the IFB’s deliver the perfect balance of low density and homogenous porosity. Our IFB range delivers big energy savings for many markets and our global manufacturing footprint enables Morgan to meet your regional and global application demands.

**Type**

Insulating firebricks.

**Classification temperature**

1100°C (2000°F)
1260°C (2300°F)
1315°C (2400°F)

**Maximum continuous use temperature**

The maximum continuous use temperature depends on the application. Please contact your local Morgan Advanced Materials representative for technical advice and guidance.

**Features:**

- IFB production by casting delivers products with superior thermal insulation. This support the design of thinner insulation layers
- Properties are achieved by casting, such as reduced weight and low thermal conductivity reduce heat absorption, contributing to significant energy savings
- Low iron and alkali flux content gives high refractoriness under load in operating conditions
- Available in large size up to 230 x 610 x 76mm (9 x 24 x 3”) and 250 x 640 x 64mm (10 x 25 x 2½”) which can be machined into special shapes, limiting the need for multiple sections and joints
- Low thermal conductivity
- Low heat storage
- Purity
- High hot compressive strength
- A comprehensive range of mortars is available to enable long last joints with superior performance

**Typical Applications**

While commonly used in back-up insulation they may also be used as hot face in selected applications. Overall uses include:

- Aluminium (anode bake furnaces, primary electrolytic cells, holding and melting furnaces and secondary re-melt furnaces)
- Petrochemical (kilns, flues, refining vessels and heaters and reactor chambers)
- Iron and steel industry (heat treatment and galvanising)
- Coke and iron making (blast furnaces, hot blast stoves, hot blast and bustle main)
- Hobby and laboratory kilns
- Ceramic industry (including kilns for domestic use)
- Glass industry
**Data sheet**

**IFB Insulation Range:** Temperatures 1100 - 1315°C (2000 - 2400°F)

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**Physical Properties**

- **Classification Temperature, °C (°F)**: 1100 (2000), 1260 (2300), 1260 (2300), 1315 (2400)
- **Density, kg/m³ (pcf), ASTM C-134**: 500 (31.2), 500 (31.2), 480 (29.9), 513 (32.0)
- **Modulus of Rupture, MPa (psi), ASTM C-133**: 0.7 (101.5), 0.7 (101.5), 1 (145), 0.79 (114.5)
- **Cold Crushing Strength, MPa (psi), ASTM C-133**: 0.8 (116), 1 (145), 1 (145), 1 (145)
- **Permanent Linear Shrinkage, % after 24 hrs, Soaking (ASTM C-210)**:
  - @ 1070°C (1958°F): -0.2
  - @ 1230°C (2264°F): -
- **Reversible Linear Expansion, max. %**: 0.6, 0.6, 0.5, 0.7
- **Deformation under hot load, % after 90 min. (ASTM C-16 JM brick tested according to ISO 3187)**:
  - 1100°C @ 0.034 Mpa (2012°F @ 5 psi): 0.1, 0.1, 0.1, -
- **Specific Heat Capacity, kJ/kg•°K @ 1000°C (1832°F)**: -
- **Thermal Conductivity, W/m•K (BTU•in/hr•ft²•°F), ASTM C-182**:
  - 200°C (392°F): 0.15 (1.04), 0.15 (1.04), -
  - 260°C (500°F): -
  - 400°C (752°F): 0.18 (1.25), 0.18 (1.25), 0.12 (0.83), -
  - 540°C (1004°F): -
  - 600°C (1112°F): 0.22 (1.53), 0.22 (1.53), 0.14 (0.97), -
  - 800°C (1472°F): -
  - 815°C (1499°F): -
  - 1000°C (1832°F): 0.32 (2.22), 0.19 (1.32), -
  - 1100°C (2012°F): -
- **Chemical Composition, %**:
  - Al₂O₃: 43, 45, 37, 38.3
  - SiO₂: 50, 48, 44.4, 44.3
  - Fe₂O₃: 1, 1, 0.8, 0.3
  - TiO₂: 0.8, 0.8, 1.2, 1.6
  - CaO: 0.8, 0.8, 15.2, 15
  - MgO + Na₂O + K₂O: 1.7, 1.7, 1.4, 0.5

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While the values and application information in the datasheet are typical, they are given for guidance only. The values and the information given are subject to normal manufacturing variation and may be subject to change without notice. Morgan Advanced Materials – Thermal Ceramics makes no guarantees and gives no warranties about the suitability of a product and you should seek advice to confirm the product’s suitability for use with Morgan Advanced Materials - Thermal Ceramics.

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