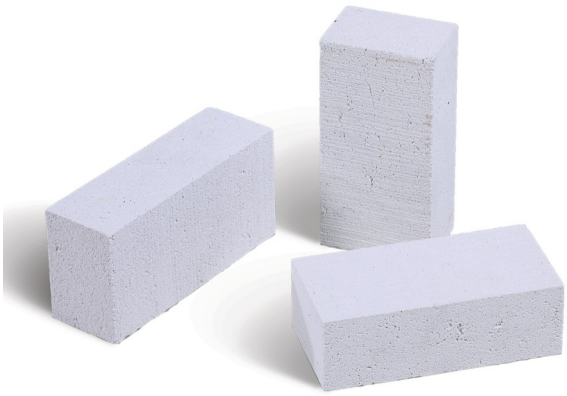
K™ Insulating Firebrick Series

Product Data Sheet



Product Description

The K Insulating Firebrick (IFB) series are industry leaders in applications such as Petrochemicals, Metals, Ceramics, and Glass, where the ability to operate in environments with a classification temperature up to 1790°C (3250°F) is critical.

K IFB series are manufactured with a unique slurry casting process, creating a matrix of microporosity which produces low thermal conductivity and good thermal shock characteristics. The excellent thermal properties of the K IFB series result from the high-temperature firing. This firing process results in anorthite mineralogy that provides excellent strength at operating temperatures and resistance to coercive alkali environments.

Each grade is formulated to meet specific thermal and physical requirements and are machined to precise tolerances on all six faces.

Insalcor is a special mullite-bonded bubble alumina IFB with medium density. Insalcor has a 77% alumina content with thermal conductivity values that are half of conventional dense alumina firebrick.

Our IFB range - JM, K, and TJM - delivers big energy savings for many markets, and our global manufacturing footprint enables Morgan to meet your regional and global application demands.

A comprehensive range of mortars are also available to suit the different grades of brick.

Features

- Low thermal conductivity
- Low heat storage
- High purity, consistent raw materials
- Low iron and alkali flux content gives high refractoriness under load in operating conditions
- High hot compressive strength
- Tight dimensional tolerances
- Large bricks or slabs and special shapes available
- Purpose-designed packaging protects bricks in transit and facilitates on-site handling

Applications

- Aluminium anode bake furnaces, primary electrolytic cells, holding and melting furnaces and secondary remelt furnaces
- Petrochemical heaters, flues, refining vessels and reactor chambers
- Iron and steel industry, hot blast furnace stoves, hot blast main and bustle pipe, heat treatment and galvanizing furnaces
- Metals, heat treatment and atmosphere furnaces
- Hobby kilns
- Ceramic industry, including kilns for domestic and laboratory use
- Glass industry
- Hot Face and Backup insulation in industrial furnaces

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Properties	K23 IFB	K25 IFB	K26 IFB	Insalcor
ISO 2245 Classification	-	-	-	180 1.3L
Classification Temperature, °C (°F)	1315 (2400)	1370 (2500)	1430 (2600)	1790 (3250)
Brick markings	23	25	26	-
Density, kg/m^3 (pcf), ASTM C134	513 (32.0)	617 (38.5)	657 (41)	1314 (82)
Modulus of rupture, MPa (psi), ASTM C133	0.79 (114.5)	0.95 (137.7)	0.9 (130.5)	2.4 (350)
Cold Crushing strength, MPa (psi), ASTM C133	1 (145)	1.3 (188.5)	1.3 (188.5)	6.9 (1000)
Reversible Linear Thermal Expansion, max. %	0.7	0.8	0.8	1.2
Linear Shrinkage, % after 24 hours soaking, ASTM C210				
1230°C (2246°F)	-0.1	-	-	-
1350°C (2462°F)	-	-0.3	-	-
1400°C (2552°F)	-	-	-1.00	-
5 hours, 1730°C (3146°F)	-	-	-	0.4
Chemical Analysis, %				
Alumina, Al_2O_3	38.3	47	51	77
Silica, SiO_2	44.3	38	35	21
Iron Oxide, Fe_2O_3	0.3	0.2	0.4	0.4
Titania, TiO_2	1.6	1.4	1.4	0.6
Lime, CaO	15	13.5	11.0	0.1
MgO + Na_2O + K_2O	0.5	0.5	0.4	0.4
Thermal Conductivity, W/m•K, ASTM C-182				
260°C	0.13	0.15	0.2	0.79
540°C	0.17	0.18	0.23	0.8
815°C	0.2	0.2	0.26	0.91
1100°C	0.24	0.22	0.29	1.09
1370°C	-	-	0.31	1.33
Thermal Conductivity, BTU•in/hr•ft^2•°F, ASTM C-182				
500°F	0.90	1.04	1.39	5.48
1004°F	1.18	1.25	1.60	5.55
1499°F	1.39	1.39	1.80	6.31
2012°F	1.67	1.53	2.01	7.56
2498°F	-	-	2.15	9.23

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