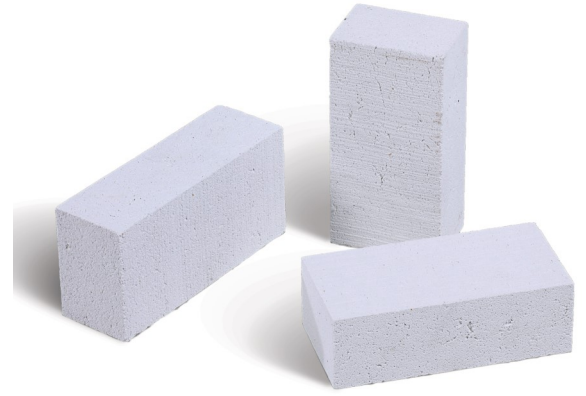


TJM™ Insulating Firebrick Series

Product Data Sheet



Product Description

The TJM Insulating Firebrick (IFB) Series are made from refractory clays, with graduated additions of alumina for the higher temperature products, and a carefully graded organic filler, which burns out during manufacture to give a uniform, controlled pore structure. Each brick is machined to precise tolerances on all six faces.

Our TJM IFB series are industry leaders in applications such as Petrochemical, Metals, Ceramics, and Glass where the ability to operate in environments with a classification temperature up to 1800°C (3300°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 - 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.

Features

- Low thermal conductivity
- High purity, consistent raw materials
- High hot compressive strength
- Dimensional integrity
- 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
- Ceramic industry including kilns for domestic and laboratory use
- Glass industry
- Hot Face and Backup insulation in industrial furnaces

TJM™ Insulating Firebrick Series



Product Data Sheet

Properties	TJM 20	TJM 23	TJM B5	TJM 26C	TJM B6	TJM 26	TJM B7	TJM 28	TJM C1	TJM 30	TJM C2	TJM Ba90	TJM Ba99
ISO 2245 Classification	-	-	-	-	-	-	-	-	-	-	-	180 1.3L	180 1.45
Classification Temperature, °C (°F)	1100 (2000)	1260 (2300)	1300 (2400)	1400 (2550)	1400 (2550)	1430 (2600)	1500 (2750)	1540 (2800)	1300 (2400)	1600 (2912)	1400 (2550)	1760 (3225)	1800 (3300)
Brick markings	TJM-20	TJM-23	TJM-B5	TJM-26C	TJM-B6	TJM-26	TJM-B7	TJM-28	TJM-C1	TJM-30	TJM-C2	TKM-Ba90	TJM-Ba99
Density, kg/m³ (pcf), ASTM C134	500 (31.2)	500 (31.2)	800 (49.9)	800 (49.9)	800 (49.9)	800 (49.9)	900 (56.2)	900 (56.2)	1000 (62.4)	1000 (62.4)	1100 (68.6)	1400 (82.0)	1450 (85.0)
Modulus of rupture, MPa (pcf), ASTM C133	0.7 (101.5)	0.7 (101.5)	1.2 (174)	1.2 (174)	1.8 (261)	1.5 (217.5)	2 (290)	1.8 (261)	2.1 (304.5)	2 (290)	2.5 (362.5)	3.5 (507.5)	3.5 (507.5)
Cold Crushing strength, MPa (psi), ASTM C133	0.8 (116)	1 (145)	2 (290)	1.8 (261)	2.5 (362.5)	2 (290)	3.5 (507.5)	2.5 (362.5)	3.5 (507.5)	3 (435)	4 (580)	10 (1450)	10 (1450)
Linear Shrinkage, %, ASTM C210													
After 24 hours soaking, 1070°C (1958°F)	-0.2	-	-	-	-	-	-	-	-	-	-	-	-
1230°C (2246°F)	-	-0.2	-	-	-	-	-	-	-	-	-	-	-
1300°C (2372°F)	-	-	-0.5	-	-	-	-	-	-0.5	-	-	-	-
1400°C (2552°F)	-	-	-	-0.8	-0.5	-0.5	-	-	-	-	-0.5	-	-
1500°C (2732°F)	-	-	-	-	-	-	-0.5	-	-	-	-	-	-
1510°C (2750°F)	-	-	-	-	-	-	-	-0.7	-	-	-	-	-
1570°C (2858°F)	-	-	-	-	-	-	-	-	-	-1	-	-	-
5 hours, 1600°C (2912°F)	-	-	-	-	-	-	-	-	-	-	-	-0.3	-0.2
Chemical analysis, %													
Alumina, Al ₂ O ₃	43	45	45	50	55	55	65	65	45	73	55	90	99
Silica, SiO ₂	50	48	48	45	41	41	32	32	49	25	41	9	0.3
Ferric oxide, Fe ₂ O ₃	1	1	1	0.9	0.9	0.9	0.8	0.7	0.9	0.6	0.9	0.3	0.1
Titanium oxide, TiO ₂	0.8	0.8	0.6	0.6	-	0.5	-	0.4	-	0.2	-	0.2	0.1
Calcium oxide, CaO	0.8	0.8	0.5	0.4	-	0.4	-	0.2	-	0.1	-	0.1	tr
Alkali as, MgO + Na ₂ O +	1.7	1.7	-	-	-	-	-	-	-	-	-	-	-
Magnesium oxide, MgO	-	-	0.2	0.2	-	0.2	-	0.1	-	0.1	-	0.1	tr
Alkali as, Na ₂ O + K ₂ O	-	-	1	-	0.9	0.9	0.8	0.8	1	0.7	1	0.3	0.2
Thermal Conductivity, W/m·K (BTU·in/hr·ft²·°F), ASTM C182													
200°C (392°F)	0.15 (1.04)	0.15 (1.04)	0.24 (1.67)	0.25 (1.73)	0.28 (1.94)	0.28 (1.94)	0.32 (2.22)	0.32 (2.22)	0.28 (1.94)	0.36 (2.50)	0.34 (2.36)	0.70 (4.86)	0.70 (4.86)
400°C (752°F)	0.18 (1.25)	0.18 (1.25)	0.26 (1.80)	0.27 (1.87)	0.29 (2.01)	0.29 (2.01)	0.33 (2.29)	0.33 (2.29)	0.30 (2.08)	0.38 (2.64)	0.36 (2.50)	0.75 (5.20)	0.75 (5.20)
600°C (1112°F)	0.22 (1.53)	0.22 (1.53)	0.28 (1.94)	0.29 (2.01)	0.32 (2.22)	0.32 (2.22)	0.34 (2.36)	0.34 (2.36)	0.34 (2.36)	0.41 (2.84)	0.38 (2.64)	0.80 (5.55)	0.80 (5.55)
800°C (1472°F)	-	0.27 (1.87)	0.30 (2.08)	0.32 (2.22)	0.36 (2.50)	0.35 (2.43)	0.38 (2.64)	0.37 (2.57)	0.38 (2.64)	0.43 (2.98)	0.42 (2.91)	0.90 (6.24)	0.90 (6.24)
1000°C (1832°F)	-	0.32 (2.22)	0.34 (2.36)	0.36 (2.50)	0.40 (2.78)	0.39 (2.71)	0.42 (2.91)	0.41 (2.84)	0.42 (2.91)	0.45 (3.12)	0.46 (3.19)	0.90 (6.24)	0.90 (6.24)
1200°C (2192°F)	-	-	-	-	-	0.43 (2.98)	-	0.46 (3.19)	-	0.48 (3.33)	-	-	-

Whilst the values and application information in this 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.