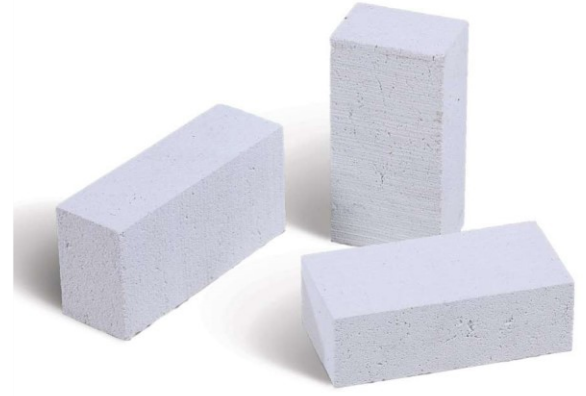


TJM[®] Insulating Firebrick Series

Product Data Sheet



Product Description

The TJM Insulating Firebrick (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 1650°C (3000°F) is critical.

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

Our IFB range - JM, K, and TJM - delivers significant 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 is 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
- Ceramic industry, including kilns for domestic and laboratory use
- Glass industry
- Hot Face and Backup insulation in industrial furnaces



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Product Data Sheet



Properties	TJM 23	TJM B5	TJM C1	TJM 26C	TJM B6	TJM C2	TJM 26	TJM B7	TJM 28	TJM 30
Classification Temperature, °C (°F)	1260 (2300)	1300 (2400)	1300 (2400)	1400 (2550)	1430 (2600)	1430 (2600)	1430 (2600)	1540 (2800)	1540 (2800)	1650 (3000)
Brick markings	TJM-23	TJM-B5	TJM-C1	TJM-26C	TJM-B6	TJM-C2	TJM-26	TJM-B7	TJM-28	TJM-30
Density, kg/m ³ (pcf), ASTM C134	530 (33.1)	800 (49.9)	1000 (62.4)	800 (49.9)	800 (49.9)	1100 (68.6)	800 (49.9)	900 (56.2)	900 (56.2)	1000 (62.4)
Modulus of rupture, MPa (psi), ASTM C133	0.7 (101.5)	1.2 (174)	2.1 (304.5)	1.2 (174)	1.8 (261)	2.5 (362.5)	1.5 (217.5)	2.0 (290)	1.8 (261)	2.0 (290)
Cold Crushing strength, MPa (psi), ASTM C133	1.0 (145)	2.2 (319)	3.5 (507.5)	1.8 (261)	2.5 (362.5)	4.0 (580)	2.0 (290)	3.5 (507.5)	2.5 (362.5)	3.0 (435)
Reversible Linear Thermal Expansion, max. %	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.9
Linear Shrinkage, % after 24 hours soaking, ASTM C210										
1230°C (2246°F)	-0.2	-	-	-	-	-	-	-	-	-
1300°C (2372°F)		-0.5	-0.5	-	-	-	-	-	-	-
1350°C (2462°F)	-			-0.5						
1400°C (2552°F)	-	-	-	-	-0.5	-0.5	-0.5	-	-	-
1500°C (2732°F)		-	-	-	-	-	-	-0.5	-	-
1510°C (2750°F)	-	-	-	-	-	-	-	-	-0.5	-
1570°C (2858°F)		-	-	-	-	-	-	-	-	-1.0
Chemical Analysis, %										
Alumina, Al ₂ O ₃	45	45	45	50	55	55	55	65	65	73
Silica, SiO ₂	48	50	49	45	41	41	41	32	32	25
Iron Oxide, Fe ₂ O ₃	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.6
Titania, TiO ₂	0.8	0.6	-	0.6	-	-	0.5	-	0.4	0.2
Lime, CaO	0.8	0.5	-	0.4	-	-	0.4	-	0.3	0.1
Magnesia, MgO	0.5	0.2	-	0.2	-	-	0.2	-	0.1	0.1
Alkali as, Na ₂ O + K ₂ O	1.2	1.0	1.0	-	0.9	1.0	0.9	0.8	0.8	0.7
Thermal Conductivity, W/m·K (ASTM C-182)										
200°C	0.16	0.24	0.28	0.25	0.28	0.34	0.28	0.32	0.32	0.36
400°C	0.18	0.26	0.30	0.27	0.29	0.36	0.29	0.33	0.33	0.38
600°C	0.22	0.28	0.34	0.29	0.32	0.38	0.32	0.34	0.34	0.41
800°C	0.25	0.30	0.38	0.32	0.36	0.42	0.35	0.38	0.37	0.43
1000°C	0.29	0.34	0.42	0.36	0.40	0.46	0.39	0.42	0.41	0.45
1200°C	-	-	-	-	-	-	0.43	-	0.46	0.48
Thermal Conductivity, BTU·in/hr·ft ² ·°F (ASTM C-182)										
392°F	1.11	1.67	1.94	1.73	1.94	2.36	1.94	2.22	2.22	2.50
752°F	1.25	1.80	2.08	1.87	2.01	2.50	2.01	2.29	2.29	2.64
1112°F	1.53	1.94	2.36	2.01	2.22	2.64	2.22	2.36	2.36	2.84
1472°F	1.73	-	-	2.22	2.50	2.91	2.43	2.64	2.57	2.98
1832°F	2.01	2.36	2.91	2.50	2.78	3.19	2.71	2.91	2.84	3.12
2192°F	-	-	-	-	-	-	2.98	-	3.19	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.

