



CERAMITE BCR AND BCA SERIES

BAUXITE AND SILICON CARBIDE BASED CASTABLE REFRACTORY

Ceramite® BCR and BCA Series are castable refractory materials based on bauxite and silicon carbide. Cast products from these refractories are widely used in the aluminium, ferroalloys, mining, cement and steel industries. The BCR aggregates have a maximum grain size of approximately 5 millimetres (0.20 inches). The BCA aggregates have a maximum grain size of approximately 4 millimetres (0.16 inches).

Different aggregates in each formulation determine the properties for each product. These refractory properties include good strength, good wear resistance, low thermal conductivity, good abrasion resistance and the ability to withstand thermal shock. The BCR series has a maximum service temperature of 1000°C (1832°F), and the BCA series has a maximum service temperature of 1500°C (2732°F).

Variations of the formulations include the following:

- BCR (bauxite and silicon carbide based material)
- BCA (bauxite and silicon carbide based material)
- BCR-B (contains a non-wetting additive)
- BCA-B (contains a non-wetting additive)
- BCR-F (trowellable)
- BCR-S (self-flowing, meaning it can be successfully cast in most instances without the use of vibration)
- BCR-SB (self-flowing with a non-wetting additive)

COMPOSITION

Material	Approximate Weight			
	BCR/ BCR-B	BCR-F	BCR-S/ BCR-SB	BCA/ BCA-B
Al ₂ O ₃	61%	60%	62%	66%
SiC	18%	14%	16%	18%
SiO ₂	8%	12%	10%	8%
CaO	6%	10%	4%	1%
Fe ₂ O ₃	1%	1%	1%	1%

BENEFITS

- Good strength
- Good wear resistance
- Low thermal conductivity
- Thermal shock resistant



APPLICATIONS

Applications	Material
Crucible Lining	BCR, BCA
Crucible Ring	BCR-F
Dampers (aluminium)	BCR, BCA
Filter Boxes	BCR-B, BCA-B
Furnace Door Linings	BCR, BCA, BCR-S, BCR-SB
Furnace Jambes	BCR, BCA, BCR-F
Hearth Furnace Blocks	BCR-B, BCA-B
Side Walls	BCR, BCA, BCR-S, BCR-SB
Sills	BCR, BCA, BCR-S, BCR-SB

Listed applications are suggested uses only.

STORAGE

Pre-fired, cast Ceramite parts for hot applications must not be exposed to water or moisture. If exposed, a full sequence of preheating must be performed.





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Property	Temperature	Value			
		BCR/BCR-B	BCR-F	BCR-S/BCR-SB	BCA/BCA-B
Density– kg/m ³ (lb/ft ³)	20°C (68°F)	2800 (175)	2800 (175)	2800 (175)	2900 (181)
	600°C (1112°F)	2700 (169)	2600 (162)	2700 (169)	–
	850°C (1562°F)	–	–	–	2700 (169)
Cold Modulus of Rupture– MPa (psi)	20°C (68°F)	18 (2610)	18 (2610)	15 (2180)	7 (1020)
	600°C (1112°F)	15 (2180)	12 (1740)	22 (3190)	15 (2180)
	850°C (1562°F)	9 (1310)	10 (1450)	14 (2030)	17 (2470)
	1000°C (1832°F)	10 (1450)	10 (1450)	13 (1890)	18 (2610)
Cold Compressive Strength– MPa (psi)	20°C (68°F)	178 (25,800)	170 (24,700)	144 (20,900)	51 (7400)
	600°C (1112°F)	188 (27,300)	140 (20,300)	188 (27,300)	143 (20,700)
	850°C (1562°F)	108 (15,700)	105 (15,200)	138 (20,000)	164 (23,800)
	1000°C (1832°F)	120 (17,400)	100 (14,500)	129 (18,700)	199 (28,900)
Hot Modulus of Rupture– MPa (psi)	1000°C (1832°F)	13 (1890)	11 (1600)	20 (2900)	24 (3480)
Abrasion*– cm ³ (in ³)	20°C (68°F)	1.3 (0.08)	0.3 (0.018)	1.8 (0.11)	1.9 (0.12)
	600°C (1112°F)	1.3 (0.08)	0.3 (0.018)	1.6 (0.10)	1.4 (0.09)
Thermal Conductivity– W/m-K (BTU-in/ft ² -hr-°F)	300°C (572°F)	3.1 (21.5)	–	3.7 (25.7)	6.1 (42.3)
	600°C (1112°F)	2.7 (18.7)	–	3.2 (22.2)	4.9 (34.0)
	900°C (1652°F)	2.8 (19.4)	–	3.0 (20.8)	4.4 (30.5)
Linear Thermal Expansion, 20–850°C (68–1562°F)		0.5%	–	0.5%	0.5%
Permanent Linear Change, 20–850°C (68–1562°F)		–0.43%	–	–0.42%	–0.30%
Maximum Service Temperature		1000°C (1832°F)	1000°C (1832°F)	1000°C (1832°F)	1500°C (2732°F)
Maximum Grain Size–mm (in)		~4 (0.16)	~5 (0.20)	~4 (0.16)	~4 (0.16)

* The abrasion test was performed per the DIN 52108 standard and pre-fired at the indicated temperature.

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Note: The physical and chemical properties listed represent 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.

SEP-16-EN-1466

Product Type: 106
Commodity Code: 02071

