



Reliable Heat Insulation



Nische  
Solutions  
North  
America

# INSULATING FIRE BRICK CATALOG

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			BTT23L	BTT23	BTT 23HS	BTT24	BTT25	BTT 25HS
Classification Group	ASTM C 155		23	23	23	-	-	-
	ISO 2245		125-0.5-L	125-0.6-L	125-0.7	130-0.7-L	135-0.8-L	135-1.1
Classification Temperature		°C	1260	1260	1260	1315	1380	1380
		°F	2300	2300	2300	2400	2500	2500
Density	ASTM C 134	kg/m <sup>3</sup>	480	590	670	670	800	1100
		lb/ft <sup>3</sup>	30	37	42	42	50	69
Cold Crushing Strength	ASTM C 133	MPa	1.5	1.2	2.1	2.1	2.5	Flat 6.0 Edge 9.0
		psi	217	174	305	305	362	Flat 870 Edge 1305
Modulus of Rupture	ASTM C 133	MPa	0.8	1.0	1.3	1.3	1.4	3.1
		psi	116	145	189	189	203	450
Permanent Linear Change after 24hrs. soaking at Temperature	ASTM C 210	%	-0.1	-0.1	-0.2	-0.5	-0.5	-0.5
		°C	1230	1230	1230	1285	1350	1350
		(°F)	(2250)	(2250)	(2250)	(2350)	(2450)	(2450)
Reversible Linear Thermal Expansion		% (max.)	0.45	0.6	0.6	0.6	0.7	0.5
Thermal Conductivity (ASTM C 182) at mean Temperature °C (°F)	200 (392)	W/mK (BTU-in/hr.ft <sup>2</sup> .°F)	0.10 (0.69)	0.16(1.11)	0.18 (1.25)	0.18 (1.25)	0.20 (1.39)	0.29 (2.01)
	400 (752)		0.12 (0.83)	0.19 (1.32)	0.21 (1.46)	0.21 (1.46)	0.21 (1.46)	0.32 (2.22)
	600 (1112)		0.15 (1.04)	0.23 (1.59)	0.25 (1.73)	0.25 (1.73)	0.23 (1.59)	0.36 (2.50)
	800 (1472)		0.17 (1.18)	0.28 (1.94)	0.30 (2.08)	0.30 (2.08)	0.27 (1.87)	0.40 (2.77)
	1000 (1832)		0.19(1.32)	0.33 (2.29)	0.35 (2.43)	0.35 (2.43)	0.32(2.22)	0.45 (3.12)
	1200 (2192)		-	-	-	-	-	-
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	%	41.0	43.0	43.0	43.0	48.0	48.0
	SiO <sub>2</sub>		47.0	51.6	51.6	51.6	47.6	47.6
	Fe <sub>2</sub> O <sub>3</sub>		0.65	1.0	1.0	1.0	1.0	1.0
	TiO <sub>2</sub>		1.0	1.0	1.0	1.0	1.0	1.0
	CaO + MgO		9.5	1.6	1.6	1.6	0.8	0.8
	Na <sub>2</sub> O + K <sub>2</sub> O		.85	1.8	1.8	1.8	1.6	1.6
Dimensional Tolerances	L x W X T	mm	±1	±1	±1	±1	±1	±1

**Availability and Packaging:**

All standard brick sizes (like ISO: 230x114x64, 230x114x76mm / 220x110x60mm / US 9"x4 1/2"x2 1/2" and slabs up to 800x500x150mm are available! BTT Insulating Firebricks are packed loose on film wrapped pallets. Cartilage packaging on request is possible.

**Note:**

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		BTT 26	BTT 26RA	BTT 26HS	BTT 27	BTT 28	BTT 30	BTT 32	
Classification Group	ASTM C 155	26	26	-	-	28	30	32	
	ISO 2245	140-0.8-L	140-0.8-L	140-0.9	145-0.8-L	150-0.9-L	160-1.0-L	170-1.2-L	
Classification Temperature		°C	1430	1430	1430	1480	1540	1650	1760
		°F	2600	2600	2600	2700	2800	3000	3150
Density	ASTM C 134	kg/m <sup>3</sup>	800	790	900	850	880	1000	1200
		lb/ft <sup>3</sup>	50	49	56	53	55	62	75
Cold Crushing Strength	ASTM C 133	MPa	2.2	2.0	4.0	2.3	2.5	2.5	3.5
		psi	319	290	580	333	362	362	507
Modulus of Rupture	ASTM C 133	MPa	1.5	1.3	2.5	1.5	1.6	1.7	2.0
		psi	217	189	362	217	232	246	290
Permanent Linear Change after 24hrs. soaking at Temperature	ASTM C 210	%	-0.4	-0.2	-0.4	-0.4	-0.4	-0.3	-0.9
		°C	1400	1400	1400	1450	1510	1620	1730
		(°F)	(2550)	(2550)	(2550)	(2650)	(2750)	(2950)	(3150)
Reversible Linear Thermal Expansion		% (max.)	0.7	0.7	0.6	0.7	0.6	0.9	1.1
Thermal Conductivity (ASTM C 182) at mean Temperature °C (°F)	200 (392)	W/mK (BTU-in/hr.ft <sup>2</sup> .°F)	-	-	-	-	-	-	-
	400 (752)		0.21 (1.46)	0.27 (1.87)	0.29 (2.01)	0.30 (2.08)	0.31 (2.15)	0.40(2.77)	0.49(3.40)
	600 (1112)		0.23 (1.59)	0.30 (2.08)	0.32 (2.22)	0.32 (2.22)	0.33(2.29)	0.41 (2.84)	0.50 (3.47)
	800 (1472)		0.28 (1.94)	0.32 (2.22)	0.35 (2.43)	0.33 (2.29)	0.35 (2.43)	0.43 (2.98)	0.51 (3.54)
	1000 (1832)		0.33 (2.29)	0.35 (2.43)	0.38 (2.63)	0.36 (2.50)	0.38 (2.63)	0.44 (3.05)	0.53 (3.67)
1200 (2192)	0.36 (2.50)	0.39 (2.70)	0.41 (2.84)	0.39 (2.70)	0.41 (2.84)	0.47 (3.26)	0.54 (3.74)		
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	%	50.0	59.0	50.0	58.0	64.0	70.0	77.0
	SiO <sub>2</sub>		45.9	37.8	45.9	38.4	33.2	27.5	20.9
	Fe <sub>2</sub> O <sub>3</sub>		0.9	0.7	0.9	0.7	0.7	0.65	0.6
	TiO <sub>2</sub>		1.0	0.7	1.0	0.7	0.7	0.75	0.5
	CaO + MgO		0.7	0.5	0.7	0.7	0.5	0.3	0.3
	Na <sub>2</sub> O + K <sub>2</sub> O		1.5	1.3	1.5	1.5	0.9	0.8	0.7
Dimensional Tolerances	L x W X T	mm	±1	±1	±1	±1	±1	±1	±1

Availability and Packaging:  
 All standard brick sizes (like ISO: 230x114x64, 230x114x76mm / 220x11 Ox60mm / US 9"x4 1/2"x2 1/2' and slabs up to 800x500x150mm are available! BTT Insulating Firebricks are packed lose on film wrapped pallets. Cartonage packaging on request is possible.

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		BTT 2600	BTT3000	BTT 3200	
Classification Group	ASTM C 199	Medium Duty	Super Duty	Super Duty	
Classification Temperature		°C	1430	1650	1760
		°F	2600	3000	3200
Density		kg/m <sup>3</sup>	1700	1900	2000
		lb/ft <sup>3</sup>	106	118	125
Modulus of Rupture when dried		MPa	12.0	18.0	16.0
		psi	1740	2610	2320
Permanent Linear Change when dried		%	-0.2	-0.2	-0.4
		°C	1300	1350	1400
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub> Fe <sub>2</sub> O <sub>3</sub>	%	35.0	43.0	54.0
			1.4	1.2	1.0
Quantity required to set 1000 Beq. This amount depends upon porosity of the brick and thickness of the joint The figure given is for trowelled joint approx. 2mm thick.		mm	180	180	200

Availability and Packaging:  
 BTT Mortars are delivered ready-to-use. in metal drums a 30kg and are packed on shrink film wrapped pallets.

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**Availability and Packaging:**

BTT Insulating Firebricks are packed on film wrapped pallets (1160x1100x1100mm) and stabilized. Quantity of bricks per pallet.

A, mm	B, mm																C,mm (Thick)		
	110	114	124	150	152	165	172	178	187	220	230	250	305	320	345	457		610	640
220	740	-	-	-	-	555	-	-	-	370	-	-	-	-	-	-	-	60	
230	668	668	586	501	501	419	419	419	419	334	334	304	252	240	222	160	120	120	64
230	560	560	490	420	420	350	350	350	350	280	280	256	210	192	180	136	104	96	76
250	608	608	532	456	456	380	380	380	380	304	304	228	228	228	168	120	90	90	64
250	512	512	448	384	384	320	320	320	320	256	256	192	192	192	135	102	78	72	76
300	504	504	441	378	378	315	315	315	315	252	252	228	189	180	168	120	90	90	64
300	408	408	357	306	306	255	255	255	255	210	210	192	153	144	135	102	78	72	76
345	444	444	390	333	333	279	279	279	279	222	222	168	168	168	111	80	60	60	64
345	360	360	315	270	270	225	225	225	225	180	180	135	135	135	90	68	52	48	76
450	336	336	294	252	252	210	210	210	210	168	168	126	126	126	84	80	60	60	64
450	320	320	280	204	240	200	200	200	200	160	160	120	120	120	80	68	52	52	76

On request BTT Insulating Firebricks could be also packed in cartons on film wrapped pallets.

Quantity of bricks per carton (carton/pallets).

A, mm	B, mm																C,mm (Thick)		
	110	114	124	150	152	165	172	178	187	220	230	250	305	320	345	457		610	640
220	25 (24)	-	-	-	-	18	-	-	-	9 (32)	-	-	-	-	-	-	-	-	60
230	25 (24)	25 (24)	20 (24)	18 (24)	18 (24)	18 (24)	18 (24)	18 (24)	15 (24)	9 (32)	9 (32)	9 (24)	9 (24)	9 (24)	9 (24)	9 (16)	-	-	64
230	20 (24)	20 (24)	16 (24)	14 (24)	14 (24)	14 (24)	14 (24)	14 (24)	12 (24)	7 (32)	7 (32)	7 (32)	7 (24)	7 (24)	7 (24)	7 (16)	-	-	76
250	18 (32)	18 (32)	18 (24)	18 (24)	18 (24)	18 (24)	14 (24)	18 (24)	16 (18)	9 (32)	9 (32)	9 (32)	9 (24)	9 (18)	9 (24)	9 (16)	-	-	64
250	14 (32)	14 (32)	14 (24)	14 (24)	14 (18)	14 (18)	14 (18)	14 (18)	14 (18)	7 (32)	7 (32)	7 (32)	7 (24)	7 (18)	7 (24)	7 (16)	-	-	76
300	25 (18)	25 (18)	18 (24)	18 (18)	18 (18)	18 (18)	18 (18)	18 (18)	16 (18)	9 (24)	9 (24)	9 (24)	9 (18)	9 (18)	9 (24)	9 (16)	-	-	64
300	20 (18)	20 (18)	14 (24)	14 (18)	14 (18)	14 (18)	14 (18)	14 (18)	14 (18)	7 (24)	7 (24)	7 (24)	7 (18)	7 (18)	7 (24)	7 (16)	-	-	76
345	18 (24)	18 (24)	18 (18)	18 (18)	18 (18)	9 (32)	9 (32)	9 (32)	9 (32)	9 (24)	9 (24)	9 (24)	9 (18)	9 (18)	9 (12)	9 (12)	-	-	64
345	14 (24)	14 (24)	14 (18)	14 (18)	14 (18)	7 (32)	7 (32)	7 (32)	7 (32)	7 (24)	7 (24)	7 (24)	7 (18)	7 (18)	7 (12)	7 (12)	-	-	76
450	25 (12)	25 (12)	18 (16)	18 (12)	18 (12)	18 (12)	18 (12)	18 (12)	16 (12)	9 (16)	9 (16)	9 (16)	9 (12)	9 (12)	9 (12)	9 (8)	-	-	64
450	20 (12)	20 (12)	14 (16)	14 (12)	14 (12)	14 (12)	14 (12)	14 (12)	14 (12)	7 (16)	7 (16)	7 (16)	7 (12)	7 (12)	7 (12)	7 (8)	-	-	76

**Mortars**
**Availability and Packaging:**

BTT Mortars are delivered ready-to-use, in metal drums and are packed on film wrapped pallet (950x950x1100mm).

Quantity of drums per pallet.

Standard packaging	BTT 2600	BTT3000	BTT3200
Metal drums of 25kg	18	18	18

		BTT Concrete 1:0:6	BTT Concrete 1:2:4	BTT Concrete LW 1100	BTT Concrete MW1260	BTT Concrete MW1300	BTT Concrete MW1360HS	BTT Concrete MW1370
Classification Group	ASTM C 401	Class "N"	Class "O"	Class "O"	Class "O,P"	Class "Q"	Class "Q,R"	Class 'R'
Temperature Limit	°C	1000	1100	1100	1260	1300	1360	1370
	°F	1832	2012	2012	2300	2372	2480	2500
Method of Application		Cast	Cast	Cast	Cast	Cast	Cast	Cast
Basic Raw Materials		Vermiculite	Insulating Aggregate	Insulating Aggregate	Insulating Aggregate	Insulating Aggregate	Insulating Aggregate	Insulating Aggregate
Maximum Grain Size	mm	6	6	4	4	6	4	6
Estimated Weight of Dry Material (*) required to place per:	kg/m³	600	1000	980	980	1500	1550	1350
erfordert pro:	lb/ft³	37.5	62.4	61.2	61.2	93.6	96.7	84.3
Estimated Water Ranges % of material weight	%	40-50	40-50	40-50	40-50	15-20	15-20	20-30
Density, oven dried after 5hr firing @	kg/m³ at °C	-	-	900@ 105	900@ 105	-	-	1250@105
	lb/ft³ at °F	31.2@ 1472	56.2@1472	56.2@220	56.2@220	-	-	78.0@220
Cold Crushing Strength, oven dried after 5hr firing @	MPa	-	-	2.41@ 105	2.41 @ 105	-	-	6.9@105
	psi	44@1472	87@ 1472	3.10@ 1100	2.41@ 1260	80@1100	13.0@1200	10.3@1371
Modulus of Rupture, oven dried after 5hr firing @	MPa	-	-	0.62@105	0.82@ 105	-	-	2.7@105
	psi	44@1472	87@ 1472	0.59@ 1100	1.03@ 1260	2.5@1100	2.5@ 1200	4.0@ 1371
Permanent Linear Change after 5hr firing @	% at °C	-0.8@800	-0.3@800	-1.0@1100	-1.5@1260	-0.5@ 1000	-0.8@ 1200	-1.5@1371
	(°F)	(1472)	(1472)	(2012)	(2300)	(1832)	(2192)	(2500)
Reversible Linear Thermal Expansion	%(max)	0.6	0.5	0.5	0.5	0.7	0.5	0.5
Thermal Conductivity (ASTM C 417) at mean Temperature °C (°F)	200 (392)	W/mK	0.15(1.04)	0.24 (1.66)	0.21 (1.46)	0.21 (1.46)	-	0.48(3.33)
	400 (752)		0.17(1.18)	0.26 (1.80)	-	-	0.48(3.33)	0.40(2.77)
	600 (1112)	(BTU-in/hr.ft².°F)	0.19 (1.32)	0.28 (1.94)	0.24 (1.66)	0.25 (1.73)	0.50 (3.47)	0.46(3.19)
	800 (1472)		0.21 (1.46)	0.30 (2.08)	0.26 (1.80)	0.26 (1.80)	0.54 (3.74)	0.48(3.33)
1000 (1832)		0.25 (1.73)	0.32 (2.22)	0.28 (1.94)	0.29 (201)	0.57 (3.95)	0.52 (3.60)	0.49 (3.40)
Chemical Analysis	Al₂O₃	%	31.0	26.0	38.0	41.0	40.0	45.0
	SiO₂		21.0	45.0	37.0	37.0	40.0	38.0
	CaO		25.0	20.0	-	-	-	11.5
	Fe₂O₃		2.0	2.0	2.4	2.4	2.5	1.5
Packaging in Bags	kg	25	25	25	25	40	40	40
	lb	55	55	55	55	88	88	88

\*No allowance for waste

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## INSULATING BRICKS

		BTT IB-D 0.5	BTT IB-D 0.6	BTT IB-D 0.7	BTT IB-D 0.8	
Classification Group	ISO 2245	90-0.5-L	90-0.6-L	90-0.7	90-0.8	
	ASTM C 155	16	16	16	16	
Classification Temperature	°C	900	900	900	900	
	°F	1652	1652	1652	1652	
Density	kg/m <sup>3</sup>	500	600	700	800	
	lb/ft <sup>3</sup>	32	38	44	50	
Cold Crushing Strength	MPa	1.2	1.5	2.5	5.0	
	psi	174	217	362	725	
Modulus of Rupture	MPa	0.6	0.8	1.2	3.2	
	psi	87	116	174	464	
Permanent Linear Change after 24hrs. soaking at Temperature	%	-2.0	-2.0	-2.0	-2.0	
	°C	900	900	900	900	
	(°F)	(1652)	(1652)	(1652)	(1652)	
Thermal Conductivity at mean Temperature °C (°F)	200 (392)	W/mK (BTU-in/hr,ft <sup>2</sup> ,°F)	0.11 (0.76)	0.13 (0.90)	0.16 (1.11)	0.24 (1.66)
	350 (662)		0.13 (0.90)	0.15 (1.04)	0.18 (1.25)	0.26 (1.80)
	600 (1112)		0.16 (1.11)	0.17 (1.18)	0.20 (1.39)	0.28 (1.94)
	800 (1472)		-	-	-	-
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	%	12.0	12.0	12.0	12.0
	SiO <sub>2</sub>		77.0	77.0	77.0	77.0
	Fe <sub>2</sub> O <sub>3</sub>		4.5	4.5	4.5	4.5
	CaO		5.0	5.0	5.0	5.0
Dimensional Tolerances	LxW xT	mm	±1	±1	±1	±1

Availability and Packaging:  
All standard brick sizes (like ISO 230x114x64, 230x114x76mm / 220x110x60mm I US 9"x4 1/2"x2 1/2") and slabs up to 350x350x80mm are available. BTT Insulating Bricks are packed loose on film wrapped pallets. Cartonage packaging on request is possible.

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## REFRACTORY CERAMIC FIBRE BLANKETS

		BTT Blanket 1260	BTT Blanket 1425	
Classification Temperature	°C	1260	1425	
	°F	2300	2600	
Color		white	white	
		weiB	weiB	
Density	kg/m <sup>3</sup>	64 -160	64 -160	
	lb/ft <sup>3</sup>	6-8	6-8	
Tensile Strength (128kg/m <sup>3</sup> eq. 8 pcf)	kPa	min.40.0	min. 40.0	
	psi	min.6.0	min.6.0	
	%	-3.0	-3.0	
Permanent Linear Change after 24hrs. soaking at Temperature	°C	1100	1350	
	(°F)	(2012)	(2462)	
Thermal Conductivity at mean Temperature °C (°F)	400(752)	W/mK (BTU-in/hr,ft <sup>2</sup> ,°F)	0.09 (0.62)	0.09 (0.62)
	800(1472)		0.18 (1.25)	0.18 (1.25)
	1000 (1832)		0.22 (1.53)	0.22 (1.53)
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	%	43.0-49.0	29.0-40.0
	SiO <sub>2</sub>		50.0- 56.0	42.0- 55.0
	ZrO <sub>2</sub>		-	15.0- 17.0
	Fe <sub>2</sub> O <sub>3</sub>		0.2	0.2
	Na <sub>2</sub> O + K <sub>2</sub> O		0.2	0.2

Availability and Packaging:  
All blankets are packed in cartons on film wrapped pallets (lose packing without pallets on request).

Standard thickness in rmm (in)	Standard roll length in rmm (in)	Standard roll width in rmm (in)
12.5 (112')	14640 (576')	kg/m <sup>3</sup> kPa psi %
19.0 (314')	9760 (384')	
25.0 (1")	7320 (288')	
38.0 (1-112")	4880 (192')	
50.0 (2")	3660 (144')	

Availability and Packaging:  
All blankets are packed in cartons on film wrapped pallets (lose packing without pallets on request).

		BTT Veneering Modules 1260 & 1425		BTT Veneering Modules 1260 & 1425				
Classification Temperature	°C	1260/1425		1260/1425				
	°F	2300/ 2600		2300/ 2600				
Density	kg/m <sup>3</sup>	110	145	128	140	170	190	
	lb/ft <sup>3</sup>	6.8	9.0	8.0	8.7	10.6	11.8	
Therrral Conductivity at mean Temperature °C (°F)	400 (752)	W/mK	0.13 (0.90)	0,12 (0.83)	0.13 (0.90)	0,12 (0.83)	0.11 (0.76)	0.10 (0.69)
	600 (1112)		0.19 (1.32)	0.18 (125)	0.19 (1.32)	0.18 (125)	0.16(1.11)	0.15 (1.04)
	800 (1472)	(BTU-in/hr,ft <sup>2</sup> ,^F)	0.28 (1 .94)	0.25(1.73)	0.28 (1.94)	0.25 (1.73)	0.23 (1.60)	0.22 (1.53)
	1000 (1832)		0.38 (2.63)	0.34 (2.36)	0.38 (2.63)	0.34 (2.36)	0.31 (2.15)	0.30 (2 08)
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	W/mK (BTU-in/hr,ft <sup>2</sup> ,^F)	1260 Modules madeout of BTT Blanket 1260 43.0-49.0		1425 Modules made out of BTT Blanket 1425 29.0-40.0			
	SiO <sub>2</sub>		50.0-56.0		42.0-55.0			
	ZrO <sub>2</sub>		-		15.0-17.0			
	Fe <sub>2</sub> O <sub>3</sub>		0.2		0.2			
	Na <sub>2</sub> O + K <sub>2</sub> O		02		02			
Modules Type			stack type		slack (S) or folded (F) type			
Fixing Components			Anchoring system according to customer request					
Dimensions Availability			Veneering modules are supplied in 305x305mm (12"x12") and of thickness varying from 50mm (2") to 100mm (4") in 25mm ( 1") steps		Mechanically fixed modules are supplied in 305x305mm (12"x12") or 610x305mm (24"x12") and of thickness varying from 75mm (3") to 375mm (15") in 25mm (1") steps.			
Packaging: BTT Modules are packed lose on film wrapped pallets.								
Note: All technical data given in our brochures are average values on the basis of proven testing methods and are subject to generally applicable production tolerances. They can be modified without prior notice (e.g. due to the new raw materials or to technical development). Upon request we will send you our Material Safety Data Sheets.								

		BTT CalSil 230L	BTT CalSil 250L	BTT CalSil 250L HT	BTT Vemiculite 375	BTT RCF Block 1000H	BTT RCF Block 1100H	BTT MFB 100	BTT MFB 150	
Classification Temperature	°C	1000	1000	1100	1100	1000	1100	650	650	
	°F	1832	1832	2012	2012	1832	2012	1202	1202	
Density	kg/m <sup>3</sup>	230	250	250	375	300	300	100	150	
	lb/ft <sup>3</sup>	14.4	15.6	15.6	23.4	18.7	18.7	6.2	6.2	
Compressive Strength	MPa	-	-	-	1.42	0.5	0.5	-	-	
	psi	-	-	-	205.9	72.5	72.5	-	-	
Modulus of Rupture	MPa	0.50	0.55	0.50	1.19	-	-	-	-	
	psi	72.5	79.8	72.5	172.5	-	-	-	-	
Permanent Linear Change after 16hrs. soaking at Temperature	°C	-2.0	-2.0	-2.0	-1.0	-4.0	-3.0	+0.3	+0.3	
	°F	(1832)	(1832)	(1922)	(1652)	(1832)	(1832)	(932)	(932)	
Thermal Conductivity at mean Temperature °C (°F)	200 (392)	W/mK (BTU-in/hr,ft <sup>2</sup> ,^F)	-	-	-	0,12 (0.83)	-	-	0.09 (0.62)	0.09 (0.62)
	400 (752)		0.11 (0.76)	0,12 (0.83)	0,12 (0.83)	0.14 (0.97)	0.10 (0.69)	0.10 (0.69)	0.14 (0.97)	0.13 (0.90)
	600 (1112)		0.13 (0.90)	0.14 (0.97)	0.14 (0.97)	0.16(1.11)	0.13 (0.90)	0.13 (0.90)	0.23 (1.60)	0.21 (1.46)
	800 (1472)		0.18(1.25)	0.19 (1.32)	0.19 (1.32)	-	0.21 (1.46)	0.21 (1.46)	-	-
	Chemical Analysis		Al <sub>2</sub> O <sub>3</sub>	0.49	0.49	0.49	10.0	45-46	47-49	
	SiO <sub>2</sub>	41.25	41.25	41.25	47.0	51-52	50-52			
	Fe <sub>2</sub> O <sub>3</sub>	0.09	0.09	0.09	5.0	1	0.2			
	CaO	39.65	39.65	39.65	2.6	-	-			
	TiO <sub>2</sub>	-	-	-	0.4	-	-			
	MgO	-	-	-	22.0	-	-			
	Na <sub>2</sub> O	0.12	-	0.12	11.0	0.5	0.2			
Dimensional Tolerances	LxWxT	mm(")	L x W ±3 mm (1/8"), T ±3 lo ±1.5 mm (1/8" lo 1/16")		LxW±1.5mm (11161, T±3io±t. Omm (1125"))	±1.5		±1.5		
Availability	LxWxT	mm(")	610 x 305mm x 25-120mm (24" X 12" X 1" to 4-3/4")		2400 x 1200mm x 10-50mm (94-1/12" X 47-1/4" X 215" to 2")	900x600mm x20-90mm (35-2/5" X 23-2/3" X 3/4" to 3-1/2")		1000 x 600mm x 50-100mm (1/3" X 23-2/3" x2"to 4")		
			1000 x500mm x25-120mm 39-1/3" X 19-2/3" X 1" to 4-3/4")		2100 x 900mm 10-50mm (82-4/6" X 35-2/5" X 215" to 2")					
Packaging BTT Insulating Blocks are packed lose on film wrapped pallets.										
Note: All technical data given in our brochures are average values on the basis of proven testing methods and are subject to generally applicable production tolerances. They can be modified without prior notice (e g due to the new raw materials or to technical development). Upon request we will send yoo oor Material Safety Data Sheets.										

## REFRACTORY CERAMIC FIBRE BOARDS

		BTT Board 1260H	BTT Board 1400H	BTT Board 1260A	BTT Board 1400A	BTT Board 1500A	BTT Board 1600A	BTT Board 1700A	BTT Board 1800A
Classification Temperature	°C	1260	1400	1260	1400	1500	1600	1700	1800
	°F	2300	2552	2300	2552	2732	2912	3092	3272
Density	kg/m <sup>3</sup>	300	300	250	250	300	400	400	550
	lb/ft <sup>3</sup>	18.7	18.7	15.6	15.6	18.7	25.0	25.0	34.3
Modulus of Rupture	MPa	0.50	0.50	0.50	0.50	0.50	0.6	0.7	1.00
	psi	72.5	72.5	72.5	72.5	72.5	87.0	101.5	145
Permanent Linear Change after 16hrs. soaking at Temperature	%	-3.0	-3.0	-1.5	-1.3	-0.9	-0.4	-0.1	-0.5
	°C	1100	1350	1100	1200	1350	1500	1600	1700
	°F	(2012)	(2462)	(2012)	(2192)	(2462)	(2732)	(2912)	(3092)
Thermal Conductivity at mean Temperature °C (°F)	200 (392)	0.10 (0.69)	0.10 (0.69)	-	-	-	-	-	-
	400 (752)	0.13 (0.90)	0.13 (0.90)	0.15 (1.04)	0.11(0.76)	0.15(1.04)	0.14 (0.97)	0.15 (1.04)	0.15 (1.04)
	600 (1112)	0.21 (1.46)	0.21 (1.46)	0.22 (1.53)	0.15(1.04)	0.16 (1.11)	0.15(1.04)	0.16 (1.11)	0.16 (1.11)
	800 (1472)	-	-	0.29 (2.01)	0.22 (1.53)	0.23 (1.60)	0.19 (1.32)	0.20 (1.39)	0.20 (1.39)
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	47-49	39-40	38	40	53	60	65	80
	SiO <sub>2</sub>	50-52	42-45	57	56	44	37	33	18
	ZrO <sub>2</sub>	-	15-17	-	-	-	-	-	-
	Fe <sub>2</sub> O <sub>3</sub>	0.2	0.2	-	-	-	-	-	-
	Na <sub>2</sub> O+K <sub>2</sub> O	0.2	0.2	-	-	-	-	-	-
	others	-	-	-	-	-	-	-	-
Dimensional Tolerances	LxWxT	mm(")	±1		±1				
Availability	LxWxT	mm(")	900x600mm x 20-90mm (35-2/5" X 23-2/3" x 3/4" to 3-1/2")			1200 x 1000mm x 10-50mm (47-114" X 39-113" x 2/5" to 2")			
Packaging BTT RCF Boards are packed lose on film wrapped pallets.									
Note: All technical data given in our brochures are average values on the basis of proven testing methods and are subject to generally applicable production tolerances. They can be modified without prior notice (e.g. due to the new raw materials or to technical development). Upon request we will send you our Material Safety Data Sheets.									

## BOTTOM BRICKS STANDARD ISO 2245 GRADES

		BTT 115	BTT 125	BTT 135	BTT 140
Classification Group	ASTM C 155	-	-	-	-
	ISO 2245	115-0.5-L	125-0.7-L	135-1.2	140-1.2
Classification Temperature	°C	1150	1200	1380	1430
	°F	2100	2192	2500	2600
Density	kg/m <sup>3</sup>	490	700	1200	1250
	lb/ft <sup>3</sup>	31	44	75	78
Cold Crushing Strength	MPa	1.5	5.5	15.0	18.5
	psi	217	798	2175	2683
Modulus of Rupture	MPa	0.8	2.4	6.0	6.1
	psi	126	358	870	892
Permanent Linear Change after 24hrs. soaking at Temperature	%	-0.8	-0.8	-1.0	-1.5
	°C	1120	1170	1350	1400
	(°F)	(2050)	(2140)	(2450)	(2550)
Reversible Linear Thermal Expansion	%(max.)	0.5	0.5	0.6	0.6
Thermal Conductivity (ASTM C 182) at mean Temperature °C (°F)	200 (392)	0.14 (0.90)	0.25 (1.73)	0.29 (2.01)	-
	400 (752)	0.16 (1.11)	0.27 (1.87)	0.30 (2.08)	0.41 (2.84)
	600 (1112)	0.17 (1.18)	0.28 (1.94)	0.35 (2.43)	0.43 (2.98)
	800 (1472)	0.19 (1.32)	0.30 (2.08)	0.39(2.70)	0.47 (3.26)
	1000 (1832)	0.21 (1.46)	0.35 (2.43)	0.35 (2.43)	0.53 (3.67)
	1200 (2192)	-	-	-	0.57 (3.95)
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	30.0	32.0	40.0	40.0
	SiO <sub>2</sub>	59.4	58.3	53.8	53.8
	Fe <sub>2</sub> O <sub>3</sub>	3.0	3.0	2.2	2.0
	TiO <sub>2</sub>	1.0	1.0	1.0	1.0
	CaO + MgO	3.2	2.3	1.8	1.8
	Na <sub>2</sub> O + K <sub>2</sub> O	3.4	3.4	1.2	1.4

### Availability and Packaging:

All standard brick sizes (like ISO: 230x114x64, 230x114x76mm / 220x110x60mm / US 9"x4 1/2"x2 1/2") and slabs up to 800x500x150mm are available! BTT Insulating Firebricks are packed lose on film wrapped pallets. Cartonage packaging on request is possible.

### Note:

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They can be modified without prior notice (e.g. due to the new raw materials or to technical development). Upon request we will send you our Material Safety Data Sheets.

		BTT LSB-0.6	BTT LSB-0.8	BTT LSB-1.0	BTT LSB-1.2	
Classification Temperature	°C	1400	1400	1500	1500	
	°F	2500	2500	2800	2800	
Density	kg/m <sup>3</sup>	600	800	1000	1200	
	lb/ft <sup>3</sup>	38	50	64	76	
Cold Crushing Strength	MPa	1.5	2.5	2.0	5.0	
	psi	218	363			
Permanent Linear Change after 24hrs. soaking at Temperature	%	-0.6	-0.5	-0.5	-0.5	
	°C	1350	1350	1500	1500	
	(°F)	(2470)	(2470)	(2740)	(2740)	
Thermal Conductivity at mean Temperature °C (°F)	600 (1112)	W/mK	0.25	0.29	0.33	0.39
	800 (1472)		0.28	0.31	0.36	0.41
	1000 (1832)	(BTU-in/hr.ft <sup>2</sup> , °F)	0.31	0.34	0.39	0.44
			-	-	-	-
Chemical Analysis	Al <sub>2</sub> O <sub>3</sub>	%	0.90	0.80	0.80	0.80
	SiO <sub>2</sub>		90.0	91.0	92.0	93.0
	Fe <sub>2</sub> O <sub>3</sub>		0.62	0.52	0.57	0.60
	CaO		3.30	3.00	2.70	2.50
Dimensional Tolerances	LxWxT	mm		±1		±1

**Availability and Packaging:**

All standard brick sizes (like ISO: 230x114x64, 230x114x76mm / 220x110x60mm | US 9"x4 1/2"x2 1/2") and slabs up to 640x450x76mm are available! BTT Insulating Bricks are packed loose on film wrapped pallets. Cartonage packaging on request is possible.

**Note:**

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The **BTT MP-1000 Block** is the industrial microporous insulation product . It is designed for high-temperature furnaces applications with

- limited lining thickness
- low cold face temperatures
- and higher heat conservation requirements

**Product Features**

**BTT MP-1000 Block** is a microporous insulation material with an extremely low coefficient of thermal conductivity i.e. with very good insulating properties. The material consists mainly of fumed silica and opacifiers for minimizing infrared radiation as well as reinforcing glass fibres. There is no diffusion upon air humidity (steam).

**BTT MP-1000 Block**

- The panels can be delivered with an optional alumina foil reinforcement for increased strength or shrink-wrapped in a PE foil
- The panels can easily be drilled and cut to size with standard tools
- Is available in a variety of thicknesses to accommodate physical manipulations
- Provides high compressive strengths
- It can be used up to a maximum application temperature of 1 000'C

**Product Applications**

- Furnace and heat process equipment
- Glass/ceramic industrial applications
- Molten metal transfer backup for the non-ferrous industries
- Molten metal transfer for the steel industry
- Hot Pipe insulation
- Laboratory insulation

Ask our design engineers for ways to increase the thermal efficiencies, heat storage, melt consistency, and integrity of your systems.



**1260°C 1790°C (2300°F-3150°F)**

Beijing Trend Technology Co.,Ltd is a company specialised in delivery of high quality light weight insulating refractory materials. Our port folio based on Insulating Fire Bricks of TREND company includes also products of other leading Chinese manufacturers. With own personal we ensure the high quality control level direct during the fabrication process as well as final inspections. We support manufacturing sites in more than 14 locations in China and are serving our customers with first class products from the following product ranges.

**Insulating fire bricks (IFB) and mortars for temperature range of 1260°C to 1790°C (2300°F - 3150°F)**

BTT IFB's and mortars are produced from high quality raw materials. Our bricks are available in all standard sizes as well as various shapes and can be used as back-up insulation and hot face lining offering the following properties:

- Excellent insulating properties
- High mechanical strength
- Good thermal shock resistance
- Exact sizes and tight tolerances
- Chemical purity
- Big slabs up to max. 640x450x100mm
- Easy handling and installation

**Refractory Ceramic Fibre products for temperatures up to 1600°C such as:**

- Bulk fibre
- Needled blankets without binder
- Modules, folded and stack type incl. anchors
- Boards for hot face and for back up insulation
- Felts, paper and card board
- Rope, packings and textiles
- Vacuum formed shapes

**Block insulation products up to 1100°C**

We are able to supply block insulation in a wide range of different material types such as:

- Mineral fibre
- Ceramic fibre
- Calcium-silicate
- Vermiculite

**Emissivity Coating in Olefin Heater**

- Payback below 12 months
- Radiant efficiency increasing up to 12%
- Fuel consumption reduction up to 8%
- Feed rate increasing up to 9%
- Reduction of flue gas temperature in stack up to 28°C
- Bridge wall temperature reduction up to 100°C
- Coils' surface temperature reduction up to 100°C
- Uniform heat flux around coils
- No more hot spots
- No more insulating scales forming Increased lifetime of coils and refractory lining
- No more harmful dust and/or fibre's from refractory in stack
- NOx reduction up to 50%
- Reduced flue gas emissions
- Improved oxygen control
- Casing plates' temperature reduction

BTICoat is a thermal and corrosion resistant ceramic coating with operating temperatures up to 1900°C. It increases the lifetime of new and of existing refractory brick, concrete and fiber linings as well as of metal substrates of industrial equipment.

BTTCoat builds up an inert surface which prevents caking, erosion and sinlering.

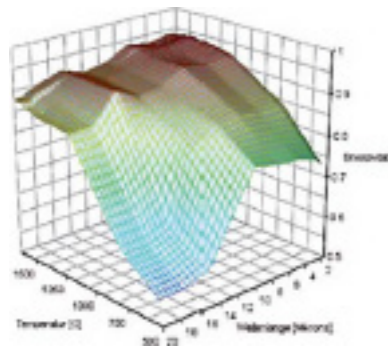
BTICoat has excellent emissivity of up to 0.98; a "Black Body" has 1.



**BTTCoat provides:**

- Extended service life of refractories incl. fibrous linings (up to 5 times)
- Effective sealing of porosity in refractories against chemical and physical attack
- Preventing internal damage of refractories caused by chemical reactions in pores
- Essential improvement of fibrous linings' mechanical resistance
- Reducing initial shrinkage of fibrous refractories by more than 50%
- Corrosion protection of metals in acidic and high temperature environments
- Heat efficiency improvement by creating a more uniform heat flow and by transferring more heat into coils instead of into flue gases and stack

Emissivity vs. Wavelength & Temperature Dependence



**SURFACE PREPARATION**

- metal substrates must be degreased and blasted using inert material (Sa 21/2)
- new cementitious type surfaces shall be dusted off. Used cementitious type surfaces must be blasted for elimination of damaged surface layers
- ceramic substrates must be blasted using suitable compound (e.g. corundum)

**MIXING**

BTTCoat is a four components, water based system. Mixing to be carried out using propeller stirrer within 45 minutes. Pot life of mixed coating is 12+24 hours.

**APPLICATION**

BTTCoat must be applied immediately on pre-prepared surface in several layers by wet to wet method. Final thickness should be 120+200 µm (depending on substrate). The coating is touch-dry in 60 minutes.

**CURING**

If equipment's operational temperature is higher than 520°C (1000°F), BTTCoat is cured by technological heat. If the temperature is lower, BTTCoat must be cured by external heat supply (PB flame). Such curing may not be applied before 12 hours after the coating. Slight colour changes may occur. This does not influence the coating's quality.

**CONSUMPTION**

Metal Substrate  
 5m<sup>2</sup> per litre (ISO µm) Dense refractory materials  
 3m<sup>2</sup> per litre (200 µm)  
 Porous refractory materials (ceramic fibres, insulating fire bricks)  
 2m<sup>2</sup> per litre (250 µm)

**HEALTH AND SAFETY**

BTTCoat is a non-hazardous system. It is necessary to wear dust mask during spraying.





BTTCoat						
Appearance			Green HC	White HC	Black HC	Emissive HC
Melting Point		°C	1900	1500	700	1900
Density	ASTMC 134	kg/m <sup>3</sup>	2400	2400	3300	3000
Thermal Expansion		K'	from 7.2 10 <sup>-6</sup> 6.4 10 <sup>-5</sup>	from 9.3 10 <sup>-6</sup> 4.8 10 <sup>-5</sup>	from 1.1 10 <sup>-5</sup> 4.3 10 <sup>-5</sup>	from 7.2 10 <sup>-6</sup> 6.4 10 <sup>-5</sup>
Thermal Conductivity at 300 °C	hot wire	W/mK	0.088	0.083	0.189	0.088
Weight Loss @750 °C		%	<0.1	<0.1	<0.1	<0.1
Porosity @20 °C		%	<0.1	<0.1	<0.1	<0.1
Thermal Shock Resistance		K/sec	>500	>500	>200	>500
Bond Strength (CSN EN 24624)	metal ceramic	Mpa -	13/15 > substrate cohesion	12/14 > substrate cohesion	11/13 > substrate cohesion	13/15 > substrate cohesion
Abrasion Resistance (ASTM C 704-94)	@20°C for thermal-gradient 11T = -980°C, beginning at 1000°C	ml	3.7 (100%)	4.6 (100%)	1.5 (100%)	3.7 (100%)
Emissivity	wave length 2/22 µm, temp. range 500/1000°C		0.50/0.95	<0.1	<0.1	0.55/0.99
	for absorptions bands of H <sub>2</sub> O vapours and CO <sub>2</sub>		0.90			>0.92

**Note:**

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