



High Quality Refractories In The Glass Industry



ZHENGZHOU SUNRISE TECHNOLOGY CO.,LTD



Zhengzhou Sunrise Technology Co., Ltd. is an integrated company of production and technology development. We are mainly engaged in the research and development of refractory materials. Our business mainly involves in production of fused cast AZS 33#, 36#, 41#, fused cast α - β alumina brick (TY-M), fused cast β alumina brick (TY-H), fused cast α alumina brick(TY-A), furnace fireclay bottom block ,magnesium, zircon, corundum, mullite, zirconia mullite, alumina bubble brick, low porosity clay, high alumina, etc. They are widely used in industries of glass, petrochemistry, metallurgy, building materials, etc. The products of our company are sold in markets of Europe, America, Middle East, Korea and Southeast Asia. We have established business and cooperation relationship with many customers in different countries and regions. Our company has passed ISO9001: 2000 Quality Management Systems Certification.







REFRACTORIES IN THE GLASS INDUSTRY

FUSED CAST AZS 33#

FUSED CAST AZS 36#

FUSED CAST AZS 41#

FUSED CAST α - β - Al_2O_3

FUSED CAST α - Al_2O_3

FUSED CAST β - Al_2O_3

CORUNDUM BRICK

FUSED SILICA BRICK

CHROMIC OXIDE BLOCK

ALUMINA BUBBLE BRICK

FIRECLAY BRICK

GLASS FURNACE BOTTOM FIRECLAY BLOCK

ZIRCON-MULLITE BRICK

SILICON CARBIDE BRICK

MULLITE BRICK

SILICA BRICK FOR GLASS KILN

SILIMANITE BRICK

MAGNSIUM SILICATE BRICK

COMMON SILICA BRICK AND LIGHT WEIGHT SILICA BRICK

ZIRCON BRICK

LOW POROSITY FIRECLAY

FIRECLAY LIGHT WEIGHT INSULATION BRICK

HIGH ALUMINA LIGHT WEIGHT INSULATION BRICK

MULLITE LIGHT WEIGHT INSULATION BRICK



FUSED CAST AZS TY-33



Shapes and sizes:

There are a great variety of formats and shapes which are available for different forming and special machine processes.

Range of application:

TY-33PT: mainly used for working ends , feeder channel, etc.

TY-33ZWS: mainly used for side walls , etc.

TY-33WS: mainly used for superstructures, crowns, sidewalls, tank bottoms, C-shaped brick and doghouse crown.





Physical and Chemical Index

Item		Behaviors
		AZS33
Chemical Composition	Al ₂ O ₃	≥50.00
	ZrO ₂	≥32.50
	SiO ₂	≤15.50
	Na ₂ O+K ₂ O	≤1.30
Bulk Density (g/cm ³)		≥3.75
Apparent Porosity (%)		≤1.2
Cold Crushing Strength (Mpa)		≥300
Exudation Temperature of Glass Phase (°C)		≥1400
Bubble Separation Ratio (1300°CX10h)		≤1.2
Anti-corrosion Rate of Glass Liquid(%) 1500°Cx36h(mm/24h)		≤1.4
Apparent Density(g/cm ³)	PT(RN)	≥3.55
	ZWS(RR)	≥3.65
	WS(RT)	≥3.75







FUSED CAST AZS TY-36



Range of application:

TY-36 is mainly used for side walls of flame furnaces with embedded melter bottoms, for total, security with average pulls and campaign lengths. TY-36A is mainly used for superstructures, front walls, back walls, top crown in glass melting furnace.

Shapes and sizes:

This product is only available for straight brick.

Physical and Chemical Index

Item		Behaviors
		AZS36
Chemical Composition	Al ₂ O ₃	≥49.00
	ZrO ₂	≥35.50
	SiO ₂	≤13.50
	Na ₂ O+K ₂ O	≤1.35
Bulk Density (g/cm ³)		≥3.85
Apparent Porosity (%)		≤1.0
Cold Crushing Strength (Mpa)		≥300
Exudation Temperature of Glass Phase (°C)		≥1400
Bubble Separation Ratio(1300°CX10h)		≤1.0
Anti-corrosion Rate of Glass Liquid(%) 1500°Cx36h(mm/24h)		≤1.3
Apparent Density(g/cm ³)	PT(RN)	≥3.55
	ZWS(RR)	≥3.75
	WS(RT)	≥3.80





FUSED CAST AZS TY-41

Shapes and sizes:

This product is available in a large size straight or approximate brick and special formats and shapes which are available for special machine processes.

Range of application:

Mainly used for sidewalls, doghouses, throat, bottom budding, Dam blocks, electric block corners.



Physical and Chemical Index

Item		Behaviors
		AZS41
Chemical Composition	Al ₂ O ₃	≥45.00
	ZrO ₂	≥40.50
	SiO ₂	≤13
	Na ₂ O+K ₂ O	≤1.3
Bulk Density (g/cm ³)		≥4.00
Apparent Porosity (%)		≤1.2
Cold Crushing Strength(Mpa)		≥300
Exudation Temperature of Glass Phase (°C)		≥1410
Bubble Separation Ratio (1300°CX10h)		≤1.0
Anti-corrosion Rate of Glass Liquid(%) 1500°Cx36h(mm/24h)		≤1.2
Apparent Density(g/cm ³)	PT(RN)	≥3.7
	ZWS(RR)	≥3.85
	WS(RT)	≥3.95



FUSED CAST α - β - Al_2O_3

TY-M has no contamination of glass melt, dense structure, excellent corrosion resistance of glass melt below 1350°C. It is the ideal refractory material for channals, spouts and working ends of float glass furnace.

TY-H has high temperature, better alkali resistance and excellent thermal stability measurement. It is a new refractory material of float glass furnace of breast wall, port mouth and top crown.

α - β - Al_2O_3 (TY-M)

★Typical Chemical Composition

Al_2O_3	94%
Na_2O	4%
SiO_2	1%
Other oxides.....	1%

★Typical Crystallographic Analysis

α - Al_2O_3	44%
β - Al_2O_3	55%
Vitreous phase.....	1%

β - Al_2O_3 (TY-H)

★Typical Chemical Composition

Al_2O_3	93%
Na_2O	6.5%
Other oxides.....	0.5%

★Typical Crystallographic Analysis

α - Al_2O_3	0%
β - Al_2O_3	99%
Vitreous phase.....	1%

α - Al_2O_3 (TY-A)

★Typical Chemical Composition

Al_2O_3	98.5%
Na_2O	0.9%
SiO_2	0.4%
Other oxides.....	0.2%

★Typical Crystallographic Analysis

α - Al_2O_3	90%
β - Al_2O_3	4%
Vitreous phase.....	6%





FUSED CAST HIGH ZIRCONIA BLOCK

The series of TY-Z are fused cast high zirconia refractories. They are made of artificial synthesis of high purity raw materials through special casting process. The crystalline texture is consisting of baddeleyite. So the characteristics of these products are excellent corrosion resistance and very low blister and stoning potential. These advantages can prevent liquid glass from pollution effectively. TY-Z can be used in a wide range of glass furnace, especially high quality and special glass furnaces such as Tvglass, Borosilicate glass, Alumina silicate glass, Halogen lighting glass, Opal glass and Fiber glass. TY-Z are mainly consisting of TY-Z88-WS and TY-Z95-WS, and used in sidewall, throat cover, throat support, electrode block, dam block parts.





Physical and Chemical Index

	Item		TY-Z88-WS	TY-Z95-WS
Chemical Composition %	ZrO ₂	≥	89.00	93.60
	SiO ₂	≤	9.00	5.30
	Al ₂ O ₃	≤	1.00	1.00
	Na ₂ O	≤	0.05	0.51
	Others	≤	1.60	1.0
Mineral Composition %	Baddeleyite	Typical	89	94
	Glass Phase		11	6
Physical Properties	Cold Crushing Strength (MPa)	≥	400	400
	Bulk Density (g/cm ³)	Typical	5.10	5.30
	Liner Thermal Expansion (%)	1000℃	0.65	0.70
		1500℃	0.10	0.30



FUSED CAST SKID RAIL BLOCK

Item		Behaviors TY-GM5	
		Special	Typical
Chemical Composition %	Al ₂ O ₃	71-74	73
	ZrO ₂	4.5-6	5.5
	SiO ₂	17-20	19
	Fe ₂ O ₃	≤0.5	0.5
	Na ₂ O	≤1.0	1.0
	CaO	≤0.5	0.5
Apparent Porosity (%)		5-8	<8
True density g/cm ³		≥3.0	3.54
Cold Crushing Strength Mpa		≥250	350
Line Expansion 1150°C %			0.9
Thermal conductivity 1250 °C: W/MK			4.6
Bulk Density (g/cm ³)	PT(RN)		≥3.0
	WS(VF)		≥3.2
Crystallographic analysis %	Corundum		39
	Mullite		41
	Glass Phase:		15
	Baddeleyite		5

Application: SKID RAIL refractory of Steel reheating furnace,

It is mainly used in areas that require high abrasion and temperature resistance, such as gliding rail bricks in steel pusher metallurgical furnaces, the tapping platform (tapping spout) style walking beam furnaces, and also as the interior for destructors.





Corundum Brick

Index	Application Limit	Al ₂ O ₃	SiO ₂	Cr ₂ O ₃	ZrO ₂ + HfO ₂	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]						Range of Application
													200 °C	400 °C	600 °C	800 °C	1000 °C	1200 °C	
Brand	[°C]	[%]	[%]	[%]	[%]	[%]	[g/cm ³]	[Vol. %]	[N/mm ²]	[°C]	SC	[%]							
GY 50	1500	54	16	-	26	0.3	3.10	13	80	1420	34	0.40	3.95	3.72	3.49	3.26	3.49	3.72	
GY 60	1500	60	15	-	24	0.5	3.00	17	120	1600	34	0.80	-	1.96	-	1.86	1.74	1.62	Melting tanks; Vitrification plants for filter dust and ash
GY 70	1400	70	22	5	-	0.7	2.80	13	90	1500	38	1.00	-	3.12	-	2.92	2.82	2.72	Mechanically pressed; melting tank backup lining and forehearth channel blocks for E-glass, C-glass and mineral-wool; bushing blocks, dam and wall for coloured glass
GY 80	1650	80	4	10	-	0.5	3.10	17	80	1700	38	0.80	-	-	-	3.15	2.85	2.55	Melting tanks; Forehearth channels in container glass tanks; Vitrification plants for filter dust and ash
GY 90	1700	90	9	-	-	0.4	2.60	30	-	1700	39	0.70	-	-	-	2.18	2.13	2.08	For lining E-glass tanks and rocks wool furnaces

Fused Silica Brick

Index	Application Limit	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Thermal shock resistance	Range of Application
										400 °C	800 °C	1000 °C	1200 °C		
Brand	[°C]	[%]	[%]	[%]	[g/cm ³]	[vol. %]	[N/mm ²]	[°C]	[%]						
YS 93	1350	93	-	-	1.80	24	25	1400	0.10	1.40	1.60	1.70	1.80	Very good	Doghhouse suspended wall bricks and hot repairs
YS 99	1600	99	-	-	1.80	20	30	1650	0.10	1.40	1.60	1.70	1.80	Very good	Doghhouse suspended wall bricks and hot repairs

Chromic Oxide Block

Index	Application Limit	Cr ₂ O ₃	TiO ₂	Al ₂ O ₃	ZrO ₂	SiO ₂	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Specific Electric Resistivity [Ohm cm]		Range of Application
													400 °C	800 °C	1000 °C	1200 °C	1000 °C	1500 °C	
Brand	[°C]	[%]	[%]	[%]	[%]	[%]	[g/cm ³]	[Vol. %]	[N/mm ²]	[°C]	SC	[%]							
CR 30	1600	30	-	60	6	3	3.40	17	70	1700	38	0.80	-	2.20	2.20	2.30	1100 °C	200	Melting tanks; Vitrification plants for filter dust and ash
CR 95	1800	96	4	-	-	-	4.10	19	80	1700	42	0.75	4.80	4.20	4.00	3.80	52	4	Mechanically pressed; melting tank backup lining and forehearth channel blocks for E-glass, C-glass and mineral-wool; bushing blocks, dam and wall for coloured glass
CR 90	1700	90*	4	-	-	-	4.10	15	80	1680	40	-	-	-	-	-	-	-	Melting tanks; Forehearth channels in container glass tanks; Vitrification plants for filter dust and ash
CR 95	1800	96	4	-	-	-	4.20	18	100	1700	42	0.75	4.80	4.20	4.00	3.80	-	-	For lining E-glass tanks and rocks wool furnaces



Alumina Bubble Brick

Item		Behaviors
Chemical Composition	Al ₂ O ₃	≥98
	Fe ₂ O ₃	≤0.2
Maximum Service Temperature °C		1700
Bulk Density g/cm ³		1.5-1.7
Cold Crushing Strength Mpa		≥10
0.1Mpa Refractoriness Under Load T _{0.6} °C		≥1700
Permanent Linear Change on Reheating (%) 1500°CX2h		±0.3
20—1000°C Thermal Conductivity W/m.K		≤0.9

Fireclay Brick

Index Brand	Chemical Analysis%						Bulk Density g/cm ³	Apparent Porosity%	Cold Crushing Strength Mpa	Refractoriness under Load 0.2 Mpa °C	Refractoriness		Reheating Linear Change%		Range of Application
	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MgO	CaO	ZrO ₂					CK	°C	1400°C 2h	1350°C 2h	
N-1		39	≤2.1				2.15	≤22	≥30	≥1400	31	1750	+0.1 -0.4		Regenerator walls Waste-gas channel
N-2a		39	≤2.1				2.10	≤24	≥25	≥1350	30	1730	+0.1 -0.5		
N-2b		34	≤2.3				2.10	≤26	≥20		30	1730	+0.2 -0.5		
N-3a		34	≤2.3				2.05	≤24	≥20	≥1320	29	1710		+0.2 -0.5	
N-3b		32	≤2.5				2.05	≤26	≥15		29	1710		+0.2 -0.5	
N-4		32	≤2.5				2.05	≤24	≥20	≥1300	28	1690		+0.2 -0.5	
N-5		31	≤2.5				2.00	≤26	≥15		27	1670		+0.2 -0.5	
N-6		31	≤2.5				2.00	≤28	≥15		23	1580			



Glass Furnace Bottom Fireclay Block

Index	Chemical Analysis %			Bulk Density g/cm ³	Apparent Porosity %	Cold Crushing Strength Mpa	Refractoriness Under Load 0.2Mpa °C	Refractoriness		Reheating Linear Change %	Range of Application
	Brand	SiO ₂	Al ₂ O ₃					Fe ₂ O ₃	SK		
BN-40a	55	≥40	≤1.5	2.3	≤18	40	1400	31	+0.1 -0.1	Glass furnace Bottom layer Side wall	
BN-45a	43	≥45	≤1.5	2.3	≤18	45	1450	31	+0.1 -0.1		
BN-60	36	≥60	≤1.5	2.5	≤17	60	1500	31	+0.1 -0.1		





Zircon-Mullite Brick

Index	Application Limit	Al ₂ O ₃	ZrO ₂ + HfO ₂	SiO ₂	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Range of Application
												400 °C	800 °C	1000 °C	1200 °C	
Brand	[°C]	[%]	[%]	[%]	[%]	[g/cm ³]	[Vol. %]	[N/mm ²]	[°C]	SC	[%]					
ZM 17	1500	70	17	12	0.3	3.15	17	—	1650	31	0.60	2.49	2.19	2.04	1.89	Long-life orifice rings
ZM 20	1650	59	20	20	0.3	2.95	18	80	1680	31	0.60	—	2.19	2.04	1.89	Tank bottom paving, tank superstructure, path blocks, perfume-bottle feeder
ZM 10	1550	73	10	15	0.2	3.00	15	50	>1500	—	0.70	—	—	—	—	Covers for working tanks and feeders
ZM 35	1650	46	33	19	0.3	3.45	1	300	1700	34	0.65	3.66	3.36	3.21	3.06	Isostatically pressed; electrode blocks, tank bottom, patch blocks and for soda lime glass

Silicon Carbide Brick

Index	Application Limit	SiC	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Thermal Shock Resistance	Appropriate Mortars	Range of Application
									400 °C	800 °C	1000 °C	1200 °C			
Brand	[°C]	[%]	[g/cm ³]	[vol. %]	[N/mm ²]	[°C]	SC	[%]							
SICA 50	1400	50	2.40	17	50	1500	37	0.50	4.70	4.24	4.02	3.79	Very good	SK 50 MA	Muffle plates for annealing lehrs
SICA 70	1500	70	2.50	16	70	1600	38	0.45	8.03	6.18	5.25	4.33	Very good	SK 50 MD	

Mullite Brick

Index	Application Limit	Al ₂ O ₃	SiO ₂	ZrO ₂ + HfO ₂	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Range of Application
												400 °C	800 °C	1000 °C	1200 °C	
Brand	[°C]	[%]	[%]	[%]	[%]	[g/cm ³]	[vol. %]	[N/mm ²]	[°C]	SC	[%]					
MU 60	1620	62	35		1.0	2.50	16	80	1700	38	0.60	1.71	1.73	1.74	1.75	Used in glass melting tank superstructure
MU 70	1650	72	26		0.6	2.50	17	80	1680	39	0.60	—	1.96	1.95	1.94	Sintered-mullite brick for superstructure of tanks and forehearth for E and borosilicate glass
MU 75	1800	75	24		0.4	2.55	19	80	>1700	39	0.55	1.99	1.96	1.95	1.94	Fused-mullite brick; recuperator shaft and base; tank superstructure in case of borio-acid glasses



Silica Brick for Glass Kiln

Brand		BG-96	BG-95	BG-94	SDBG-96
Index					
SiO ₂ %	≥	95.5	95	94	96
Fe ₂ O ₃ %	≤	1.0	1.2	1.5	1.0
Al ₂ O ₃ +TiO ₂ +R ₂ O %					0.5
Refractoriness		1710			
RUL (0.2MPa) T ₁ , °C	≥	1650		1630	1680
AP %	≤15 Kg/pc.wt	20	21	22	18
	≤1.51-40 Kg/pc.wt	21	22	22	20
CCS, Mpa	≥	29.4		24.5	34.3
True density, g/cm ³	≤	2.37	2.38		2.34

Silimanite Brick

Index	Application Limit	Al ₂ O ₃	SiO ₂	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Range of Application
											400°C	800°C	1000°C	1200°C	
Brand	[°C]	[%]	[%]	[%]	[g/cm ³]	[Vol. %]	[N/mm ²]	[°C]	SC	[%]					
SL 50	1500	5.0	4.5	1.2	2.35	18	45	1550	35	0.55	1.71	1.73	1.74	1.75	Rider arches
SL 60		6.0	3.8	1.0	2.40	20	50	1600	36	0.60	1.71	1.73	1.74	1.75	Furnace superstructure general, forehearth superstructure
SL 70	1600	7.0	2.9	<1.0	2.40	24	10	1650	38	0.60	2.18	2.08	2.03	1.98	Bushing for rockwool and fibre glass

Magnesium Silicate Brick

Index	Application Limit	MgO	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	Bulk Density	Apparent Porosity	Cold Crushing Strength	Refractoriness Under Load °C	Pyrometric Cone Equivalent	Reversible Thermal Expansion at 1000°C	Thermal Conductivity [W/mK]				Range of Application
												400°C	400°C	400°C	400°C	
Brand	[°C]	[%]	[%]	[%]	[%]	[g/cm ³]	[vol. %]	[N/mm ²]	[°C]	SC	[%]					
MS50	1600	52	35	7	5	2.40	27	25	1650	35	1.0	1.68	1.93	2.05	2.18	Special quality for upper section of ceramic recuperators, alkali-resistant
MS55	1600	53	35	5	6	2.65	20	30	1650	35	1.1	1.57	1.77	1.87	1.97	Checker work and chamber walls in the condensation zone; high resistance to alkali and so ₂ -attack



Common Silica Brick and Light Weight Silica Brick

Item Brand	For General Purpose			Light Weight Silica Brick
	GZ-95	GZ-94	GZ-93	QG-1.2
SiO ₂ % ≥	95	94	93	91
Refractoriness	1710	1710	1690	1670
RUL (0.20MPa) T ₁ , °C ≥	1650	1640	1620	1560
Apparent porosity, % ≤	22	23	25	≥45
Cold crushing strength, Mpa ≥	29.4	24.5	19.6	3.5
True density, g/cm ³ ≤	2.37	2.38	2.39	2.39
Bulk density, g/cm ³ ≤				1.20

Zircon Brick

Index Brand	Application Limit [°C]	ZrO ₂ + HfO ₂ [%]	SiO ₂ [%]	Fe ₂ O ₃ [%]	Bulk Density [g/cm ³]	Apparent Porosity [Vol. %]	Cold Crushing Strength [n/mm ²]	Refractoriness Under Load °C	Pyrometric Cone Equivalent SC	Reversible Thermal Expansion at 1000°C [%]	Thermal Conductivity [W/mK]				Range of Application
											400 °C	1200 °C	800 °C	1000 °C	
ZS 65	1700	65	33	0.5	3.65	19	70	1700	40	0.50	2.87	2.63	2.51	2.39	Neutral course in tank superstructure Sealing course in tank bottom
HZS 65	1700	65	33	-	4.25	1	200	1700	40	0.50	-	4.40	4.00	3.60	Isostatically pressed for borosilicate and E-glass tanks as well as forehearth
HZS 68	1700	68	30	-	4.25	5	200	1700	34	0.50	-	4.40	4.00	3.60	For glass contact in borosilicate and E-glass melters and forehearth

Low Porosity Fireclay

Index Brand	Chemical Analysis %						Bulk Density g/cm ³	Apparent Porosity %	Cold Crushing Strength Mpa	Refractoriness Under Load 0.2Mpa °C	Refractoriness		Reheating Linear Change %		Range of Application
	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MgO	CaO	ZrO ₂					SK	°C	1400°C, 2h	1350°C, 2h	
DN-12	≥45	≤1.2					2.37	≤12	68	1500	32	1770			Regenerator walls, Regenerator checkers, Rider arches
DN-15	≥42	≤1.5					2.3	≤15	60	1470	32	1770			



Magnesia brick is characterized by high refractoriness, good alkali resistance and superior refractoriness under load, and it is mainly applied to the regenerators of glass kilns and other high temperature furnaces.

Item	MZ-91	MZ-92	MZ-93	MZ-94	
Chemical composition %	MgO ≥	91	92	93	94.5
	SiO ₂ ≤	4.0	3.5	2.5	2.0
	Fe ₂ O ₃ ≤	1.3	-	-	1.2
	CaO ≤	2.5	2.5	2.0	1.8
Apparent Porosity % ≤	18	18	18	18	
Bulk Density g/cm ³ ≥	2.86	2.90	2.95	2.95	
Cold Crushing Strength Mpa ≥	60	60	50	60	
0.2Mpa Refractoriness Under Load T _{0.2} °C	≥1570	≥1560	≥1620	≥1650	
Permanent Linear Change On Reheating (%) 1500°CX2h	0~+0.4	0~+0.4	0~+0.4	0~+0.4	
Thermal Shock Resistances 100°C water cycles	≥18	≥18	≥18	≥18	

Fused Magnesia Brick

Item	DMZ-92	DMZ-95	DMZ-97	DMZ-98	
Chemical composition %	MgO %	≥91.5	≥94.5	≥96.5	≥97.5
	SiO ₂ %	≤1.7	≤1.2	≤1.0	≤0.6
	CaO %	≤3.5	≤2.4	≤1.2	≤1.2
Apparent Porosity %	≤20	≤18	≤17	≤16	
Cold Crushing Strength Mpa	≥55	≥60	≥70	≥70	
0.2Mpa Refractoriness Under Load T _{0.2} °C	≥1580	≥1650	≥1680	≥1700	
Bulk Density g/cm ³	≥2.90	≥2.95	≥3.05	≥3.05	
Thermal Stability 950°C Wind cycles	≥10	≥10	≥10	≥10	



DIRECT BONDED MAGNESIA CHROME BRICK

Item		DMC-20	DMC-18	DMC-12	DMC-8
Chemical composition %	MgO% \geq	55	60	65	80
	SiO ₂ % \leq	2.5	2.4	1.5	1.5
	Cr ₂ O ₃ % \geq	20	18	12	8
Apparent Porosity % \leq		18	18	18	18
Bulk Density g/cm ³ \geq		3.15	3.10	2.98	2.95
Cold Crushing Strength Mpa \geq		40	40	40	45
0.2Mpa Refractoriness Under Load T _{0.2} °C \geq		1700	1700	1680	1650
Permanent Linear Change On Reheating (%) 1500°CX2h		0~+0.4	0~+0.4	0~+0.4	0~+0.4
Thermal Shock Resistances 100°C water cycles \geq		6	6	6	6

MAGNESIA ZIRCON BRICK

Item		MAGZIR-8	MAGZIR-10	MAGZIR-12	MAGZIR-13
Chemical composition %	MgO \geq	80	77	75	70
	ZrO ₂ \geq	8	10	12	13
Apparent Porosity % \leq		19	18	18	18
Bulk Density g/cm ³ \geq		2.95	3.00	3.05	3.05
Cold Crushing Strength Mpa \geq		50	45	45	40
0.2Mpa Refractoriness Under Load T _{0.2} °C \geq		1600	1550	1550	1600
Permanent Linear Change On Reheating (%) 1500°CX2h		0~+0.4	0~+0.4	40~+0.4	40~+0.4
Thermal Shock Resistances 100°C water cycles \geq		10	10	10	10



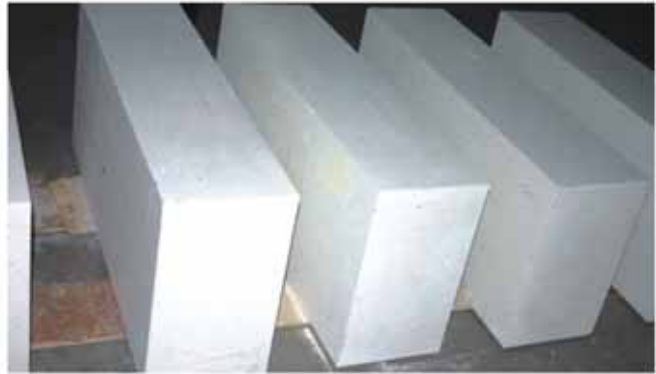


Fireclay Light Weight Insulation Brick

Fireclay and high alumina light weight insulating refractory brick is a kind of insulation material adopting organic matter as ignition loss substance in order to increase the porosity of refractory, which has such advantages as high porosity, small volume density, good insulation effect, high mechanical intensity, small thermal conductivity and long service life. For various industrial kilns & furnaces, it is a kind of essential refractory for energy saving and temperature preservation.

Index \ Brand		NG-0.5	NG-0.6	NG-0.8	NG-1.0
Bulk Density(g/cm ³)		0.5	0.6	0.8	1.0
Cold Crushing Strength MPa \geq		1.5	2.0	2.5	3.4
Reheating Linear Change %	$^{\circ}\text{C} \times 12\text{h}$	1250	1300	1350	1350
	\leq	0.5	0.5	0.5	0.3
Thermal Conductivity (350 \pm 25 $^{\circ}\text{C}$) w/m.k		0.18	0.25	0.35	0.50
Al ₂ O ₃ \geq %		35	40	42	42
Fe ₂ O ₃ \leq %		2.5	2.5	2.0	2.0
Maximum Service Temperature $^{\circ}\text{C}$		1150	1200	1280	1300





High Alumina Light Weight Insulation Brick

Index	Brand	LG-1.0	LG-0.8	LG-0.6
Bulk Density(g/cm ³)		1.0	0.8	0.6
Cold Crushing Strength MPa ≥		4.00	2.94	1.96
Reheating Linear Change %	°C × 12h	1450	1400	1350
	≤	0.5	0.5	0.5
Thermal Conductivity (350±25°C) w/m.k		0.45	0.32	0.25
Al ₂ O ₃ ≥ %		52	52	50
Fe ₂ O ₃ ≤ %		1.5	1.6	1.8
Maximum Service Temperature °C		1380	1350	1300

Mullite Light Weight Insulation Brick

Index	Brand	MQ-0.8	MQ-1.0	MQ-1.2
Bulk Density(g/cm ³)		0.7~0.8	0.8~1.0	1.0~1.2
Cold Crushing Strength MPa ≥		2.1~4.2	3.2~4.0	3.8~5.0
Reheating Linear Change %	°C × 12h	1350	1400	1500
	≤	±0.5	±0.5	±0.5
Thermal Conductivity (350±25°C) w/m.k		0.2~0.4	0.25~0.4	0.35~0.4
Al ₂ O ₃ ≥ %		52	56	63
Fe ₂ O ₃ ≤ %		1.0	0.8	0.6
Maximum Service Temperature °C		1350	1400	1450



Mullite Insulation Brick

Sunrise Brand	JM20	JM23	JM26	JM28	JM30	JM32	
USA Brand	IFB2000	IFB2300	IFB2600	IFB2800	IFB3000	IFB3200	
Classification Temperature (°C)	1260	1260	1430	1540	1650	1760	
Bulk Density (g/cm ³)	0.50-0.52	0.55-0.62	0.78-0.8	0.88	1.03	1.25	
Cold Crushing Strength (Mpa)	1.0	1.2	1.6	2.1	2.5	3.5	
Modulus of Rupture (Mpa)	0.8	0.9	1.4	1.6	2.1	2.1	
Reheating Linear Change (%)CT-30°C X 8H	1230°C -0.5	1230°C -0.5	1400°C -0.5	1510°C -0.5	1620°C -0.9	1730°C -0.9	
Thermal Expansion 1000°C (%)	0.5	0.5	0.7	0.8	0.9	1.1	
Thermal conductivity (W/m.k)	400°C	0.14	0.14	0.27	0.32	0.41	0.49
	600°C	0.16	0.16	0.29	0.34	0.43	0.5
	800°C	0.18	0.18	0.31	0.36	0.44	0.51
	1000°C	0.20	0.20	0.33	0.38	0.45	0.53
Al ₂ O ₃ (%)	35	37	54	64	72	77	
Fe ₂ O ₃ (%) ≤	1.0	1.0	1.0	1.0	1.0	1.0	



Diatomite Insulation Brick

Sunrise Brand	GG-0.5	GG-0.6	GG-0.7	GG-0.8	GG-0.5
Max Service Temperature (°C)	900	900	900	900	900
Bulk Density (g/cm ³) ≤	0.5	0.6	0.7	0.8	1.0
Cold Crushing Strength (Mpa) ≥	0.8	1.2	2.0	3.5	5.0
Reheating Linear Change (%)(°C 900 °CX 8Hr) ≤	0.5	0.5	0.5	0.5	0.5
Thermal conductivity (W/m.k) 300°C	0.11	0.15	0.10	0.20	0.23
SiO ₂ (%)	71.5	71.5	70.5	70.0	70.0
Al ₂ O ₃ (%)	16.5	17.0	17.5	18.0	18.0
Fe ₂ O ₃ (%)	4.0	4.2	4.5	5.0	5.0



Ceramic Fiber Blanket

	1260 Blanket	1400 Blanket	1500 Blanket	1600 Blanket
Classification temperature (°C)	1260	1425	1500	1600
Melting point (°C)	1760	1700	1760	-
Colour	White	White	Blue gree	White
Fiber diameter (u m)	2.6	2.8	2.65	3.1
Fiber length (mm)	~250	~250	~250	~100
Linear shrinkage(%)	(1100oC x 24 hrs) 1.8	(1300oC x 24 hrs) 1.5		
Shot content (>212 micro meter) (%)	18	18		
Thermal conductivity Kcal/mh°C (W/mK) ,ASTM C201				
1260 blanket	64 kg/m ³	96 kg/m ³	128 kg/m ³	160 kg/m ³
mean 400°C	0.13	0.12	0.07	0.09
mean 600 °C	0.21	0.17	0.12	0.14
mean 800°C	0.30	0.25	0.16	0.20
1400 blanket			128 kg/m ³	160 kg/m ³
mean 600 °C			0.13	0.14
mean 800°C			0.20	0.20
mean1000 °C			0.29	0.28
Chemical composition (%)				
Al ₂ O ₃	47.1	35.0	40.0	72
SiO ₂	52.3	49.7	58.1	28
ZrO ₂		15.0		
Cr ₂ O ₃			1.8	
Bulk density (Kg/m ³)	64, 96, 128, 160			
Available size (mm/roll)	7200*600*6,12.5,20,25,38;3600*600*50			



Ceramica Fiber Board

	1000 Board	1260 Board	1400 Board	1600 Board
Classification temperature (°C)	1000	1260	1425	1600
Bulk density (Kg/m ³)	280	280	280	400
Linear shrinkage (%. °C x 24 hrs)	1.3 (900)	1.1 (1100)	1.6 (1200)	1.2 (1400)
Modulus of rupture (kg / cm ²)	5	5	5	2
Shot content (>212 micro meter) (%)	18	18		
Thermal conductivity Kcal/mh °C (W/mK) ,ASTM C201				
	280 kg/m ³	280 kg/m ³	280kg/m ³	400kg/m ³
mean 400 °C	0.08	0.09		
mean 600 °C	0.13	0.14	0.10	0.15
mean 800 °C	0.20	0.20	0.14	0.18
mean1000 °C			0.20	0.25
Chemical composition (%)				
Al ₂ O ₃	40.1	44	52	58
SiO ₂	54.3	54	47	41
ZrO ₂				
Cr ₂ O ₃				
Available size (mm/pc)	900/1000*600*6/12.5/20/25/30/40/50; 1100*700*25/50 Density:280,300,350,400Kg/m ³			





GLASS MOULD BRICK

MD Mold Bricks characterize as follows:

Low permanent linear change on reheating Firing under the temperature of 1050 Degree. Ensures no distortion and no permanent linear change on the mold bricks.

High dense structure MD Mold Brick is manufactured from micron grade material, which is pressed molding following being mixed by high speed blender. The maximum rod is 1000 with extremely fine section structure. Good Thermal Shock Stability. No cracks even chap would be happening after long service of the bricks

Easy to be machined The Mold Brick is manufactured based on the customer request, which avoids waste from cutting of the big blocks. We have established good fame among our customers since our mold brick line was put into production with some performances superior to similar products available in the market.

MD mold bricks could also be used in thermal bending glass, thermal melting glass and art glass. We sincerely welcome the comments from all our customers.

MD Product Dimension List

Number	L(mm)	W(mm)	H(mm)
1	450	250	25-150
2	450	320	25-150
3	300	300	25-150
4	380	300	25-150
5	510	270	25-150
6	510	510	25-150
7	440	360	25-150
8	600	480	25-150
9	500	380	25-150



Physical and chemical index

Item		Behaviors
		TY-MD
Typical Chemical Composition %	Al ₂ O ₃	≥25
	Fe ₂ O ₃	≤1.5
Cold Crushing Strength Mpa		≥10
Cold Bending Strength Mpa		≥1.5
Permanent Linear Change(%) 1000℃X24h		≤0.5
Thermal conductivity 350±10℃ (W/m.k)		≤0.35
Bulk Density (g/cm ³)		≥1.0
Grain Size (mesh)		≤200





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