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HENAN FIRERAMO INDUSTRIAL CO.,LTD.

**REFRATORIES FOR
GLASS KILN**



01 Regenerator Checker Wall Crown Bottom

Magnesia Chromite Brick

Description

Magnesia chrome bricks are fired at high temperature with magnesia and chromium concentrate as the main raw materials. It has excellent thermal shock stability and resistance to repeated condensation and evaporation of alkali steam.

It has the feature of excellent thermal shock stability, good resistance to alkali steam and high cold crushing strength. It is mainly used for central checker bricks and wall bricks in the regenerator of glass melting furnaces.



Technical Properties

Item		MG1	MG2	MG3	MG4	MG5	MG6
Chemical composition (%)	MgO ≥	74	74	72	57	57	55
	SiO ₂ ≤	1.5	1.8	2.0	1.5	1.8	2.0
	Cr ₂ O ₃	12~15	12~15	12~15	20~23	20~23	20~23
Apparent Porosity (%) ≤		17	18	19	17	18	19
Bulk Density (g/cm ³) ≥		3.10	3.05	3.00	3.12	3.08	3.03
Cold Crushing Strength (MPa) ≥		50	45	40	50	45	40
0.2MPa Refractoriness Under Load (°C)		≥1700	≥1660	≥1650	≥1700	≥1680	≥1660

Magnesia Brick

Description

Magnesia brick is an alkaline refractory material with magnesia content above 90% and periclase as the main crystal phase. Generally, it can be divided into two categories: sintered magnesia bricks (also known as fired magnesia bricks) and chemically bonded magnesia bricks (also known as unfired magnesia bricks). Magnesia bricks with high purity and high firing temperature are called direct bonded magnesia bricks; bricks made of fused magnesia as raw materials are called fused combined magnesia bricks.

It has the feature of the excellent slag resistance, high refractoriness, good thermal stability and high cold crushing strength.

It is mainly applied to the regenerators of glass kilns and other high temperature furnaces.



Technical Properties

Item		FLM91	FLM92	FLM93	FLM94	FLM95	FLM96	FLM97	FLM98
Chemical Composition (%)	MgO ≥	91	92	93	94.5	95	96	97	97.5
	SiO ₂ ≤	4	3.5	2.5	2	1.5	1.2	1	0.5
	Fe ₂ O ₃ ≤	1.3	-	-	1.2	-	-	-	-
	CaO ≤	2.5	2.5	2	1.8	1.5	1.2	1.2	0.6
Apparent Porosity (%) ≤		18	18	18	18	18	18	17	15
Bulk Density (g/cm ³) ≥		2.86	2.9	2.95	2.92	2.95	3	3.05	3.05
Cold Crushing Strength (MPa) ≥		60	60	50	60	55	60	60	60
0.2MPa Refractoriness Under Load T _{0.6} (°C)		≥1570	≥1560	≥1620	≥1650	≥1650	≥1680	≥1700	≥1700
Permanent Linear Change On Reheating (1500°CX2h) (%)		0~+0.4	0~+0.4	0~+0.4	0~+0.4	-	-	-	-



Magnesia Zirconia Brick

Description

Magnesia zirconia bricks are made of high-purity fused magnesia and synthetic magnesia-zirconium sand as raw materials. After high-pressure molding and high-temperature firing, they have excellent corrosion resistance to alkali metals, oxides and sulfides.

It has the feature of excellent corrosion resistance, high strength, good stability and good slag resistance.

It is widely used in glass melting furnaces, regenerators, cement kilns, steelmaking electric furnaces and non-ferrous metal smelting.

Technical Properties

Item		FLMZ8	FLMZ10	FLMZ13
Chemical composition (%)	MgO ≥	80	75	70
	ZrO ₂ ≤	8	10	13
Apparent Porosity (%) ≤		19	18	18
Bulk Density (g/cm ³) ≥		2.95	3.00	3.05
Cold Crushing Strength (MPa) ≥		50	45	40
0.2MPa Refractoriness Under Load (°C)		1600	1550	1600
Thermal Shock Resistance (950 °C, Air Cooling) (cycles) ≥		10	10	10



Chamotte Refractory Brick

Description

Chamotte refractory bricks are produced with special casting materials and vibration molding technology.

The product's resistance to molten glass is better than traditional casting products and stamping products.

It has the feature of good wear-resistance, corrosion resistance, low permanent linear change on reheating, high dense structure and good thermal shock stability.

It's especially suitable to build the bottom of furnace, cooling and working end side wall of glass furnace.

Technical Properties

Item		MG1
Chemical composition (%)	Al ₂ O ₃ ≥	40
	Fe ₂ O ₃ ≤	1.5
Apparent Porosity (%) ≤		18
Bulk Density (g/cm ³) ≥		2.30
Cold Crushing Strength (MPa) ≥		50
0.2MPa Refractoriness Under Load (°C)		≥1450
Permanent Linear Change at (1400°Cx2h) (%)		±0.2

Silica Brick

Description

Silica brick for glass kiln is an acid refractory material mainly made of tridymite, cristobalite and a small amount of residue. The refractory raw material is natural silica sand, and its SiO₂ content should be above 96%. Silica brick has high temperature and volume stability, no pollution to glass liquid, chemical corrosion resistance, small bulk density, and can reduce the weight of the furnace body.

It has the feature of stable volume under the high temperature, no pollution to the glass liquid, good resistance to chemical attack and small bulk density is small. It's used in the roof and superstructure of glass melting tanks as well as for hot repairs.



Technical Properties

Item		Unit	Value		
			BG-96A	BG-96B	BG-95
Chemical Composition	SiO ₂	%	≥96.0	≥96.0	≥95.0
	Fe ₂ O ₃	%	≤0.5	≤0.8	≤1.0
	Al ₂ O ₃ +2(K ₂ O+Na ₂ O)	%	≤0.5	≤0.7	-
True Density		g/cm ³	≤2.33	≤2.33	≤2.33
Apparent Porosity		%	≤21	≤22	≤22
Cold Crushing Strength		MPa	≥45	≥45	≥45
Refractoriness Under Load	T _{0.5}	°C	≥1690	≥1680	≥1670
Permanent Linear Change	1450°C*2h	%	0-0.2	0-0.2	0-0.2
Residual Quartz		%	≤1	≤1	≤1

New Type Non-lime Bonded Silica Brick for Glass Kiln

Item		Value
Chemical Composition (%)	SiO ₂	≥99.0
	Al ₂ O ₃	≤0.2
	Fe ₂ O ₃	≤0.1
	CaO	≤0.1
Bulk Density (g/cm ³)		≥1.88
Apparent Porosity (%)		≤16
Cold Crushing Strength (MPa)		≥40
Refractoriness Under Load (°C)	T _{0.6}	≥1690

Fused Silica Brick

Description

Fused silica brick is a high-precision and high-purity high-grade quartz refractory material. It is an excellent product for glass furnace. It has the feature of low thermal expansion rate, excellent thermal shock resistance and high SiO₂ content. It is widely used in hot repair project on coke oven. It can also be widely used in glass furnace.



Technical Properties

Item	Fused Silica Brick
SiO ₂ (%)	≥99
Al ₂ O ₃ (%)	≤0.3
Fe ₂ O ₃ (%)	≤0.3
CaO (%)	≤0.1
Bulk Density (g/cm ³)	≥1.85
Apparent Porosity (%)	≤18
Cold Crushing Strength (MPa)	≥40
Refractoriness Under Load, T _{0.6} (°C)	≥1680



Sillimanite Brick

Description

Sillimanite brick is a kind of firebrick made by sillimanite. Sillimanite is calcined at high temperature and converted into mullite and free silica. Generally, high temperature firing method and mud pouring method are used for production.

It has the feature of good wear resistant, anti-erosion for molten glass, slag, etc., and low thermal expansion.

It is primarily used for the key parts of the furnace of glass furnace, alkali-free glass fiber furnace, blast furnace hot blast stove and refractory-material tunnel kiln, etc.

Technical Properties

Item	Sillimanite Brick		
	FLM-65	FLM-60	FLM-50
Al ₂ O ₃ (%)	≥65	≥60	≥50
SiO ₂ (%)	≤32	≤37	≤45
Fe ₂ O ₃ (%)	≤0.5	≤1.0	≤1.2
Bulk Density (g/cm ³)	≥2.5	≥2.4	≥2.3
Apparent Porosity (%)	≤18	≤19	≤19
Cold Crushing Strength (MPa)	≥60	≥50	≥45
Refractoriness Under Load (0.2MPa, T _{0.6}) (°C)	≥1650	≥1600	≥1550
Thermal Shock Resistances (1100°C, water cooling) (cycles)	≥20	≥20	≥20



Chrome Zirconium Corundum Brick

Description

Chrome zircon corundum brick is made of chrome, zircon material. Chromium material has excellent alkali and acid resistant performance.

It has the feature of excellent alkali resistance, excellent acid resistance and high refractoriness.

It's mainly used as checker bricks in regenerator part of glass furnace, wall bricks for waste incinerator, superstructure bricks for glass smelting furnace.

Technical Properties

Item		Chromium Zirconium Corundum Brick
		FLM-15
Chemical composition (%)	Cr ₂ O ₃	≥15
	ZrO ₂	≥3
	SiO ₂	≤2
	Al ₂ O ₃	≥80
Bulk Density (g/cm ³)		≥2.35
Apparent Porosity (%)		≤18
Cold Crushing Strength (MPa)		≥80
Refractoriness Under Load (°C)		≥1700

Chromium Zirconium Mullite Brick

Description

Chromium Zirconium Mullite brick is made of mullite and chromium sand as raw materials. This kind of brick has good acid-resistance, anti-stripping, shock resistance and many other features.

It has the feature of excellent acid-resistance, excellent stripping resistance performance and good thermal shock resistance.

It can not only be used for the tongue arch, crater arch, wall hook and spray nozzle arch of glass furnace chamber, but also the regenerator upper checker in glass kiln or glass wool. It is also used for the arch brick of spray nozzle in electrical kiln, ceramic kiln, enamel kiln, alkali kiln, glass wool kiln, fiberglass kiln, float glass kiln, end fire furnace, etc.



Technical Properties

Item		Chromium Zirconium Mullite Brick		
		CZM-50	CZM-60	CZM-70
Chemical composition (%)	Al ₂ O ₃	≥50	≥60	≥70
	Fe ₂ O ₃	≤1	≤1	≤1
	Cr ₂ O ₃	≥10	≥10	≥10
	ZrO ₂ +HfO ₂	≥6	≥6	≥6
Bulk Density (g/cm ³)		≥2.9	≥2.9	≥3.2
Apparent Porosity (%)		≤18	≤18	≤17
Cold Crushing Strength (MPa)		≥90	≥100	≥110
Refractoriness Under Load, T _{0.6} (°C)		≥1700	≥1700	≥1650
Thermal Shock Resistance (1100°C, water cooling) (cycles)		≥10	≥10	≥5

Light Weight Silica Brick

Description

Light weight silica brick refers to a kind of refractory products made from silica as the main material and with SiO₂ content not less than 91%. The main mineral composition of silica insulation brick is phosphorite and cristobalite.

It has the feature of high refractoriness under load, energy-saving, less heat radiation loss and low thermal conductivity.

It's suitable for industrial furnaces such as coke ovens, hot blast furnaces, glass furnaces and carbon furnaces.



Technical Properties

Item		LWS-1.2	LWS-1.0	LWS-0.8	LWS-0.6
SiO ₂ (%)		92	92	90	89
Fe ₂ O ₃ (%)		0.60	0.57	0.52	0.62
CaO (%)		2.5	2.7	3.0	3.3
Bulk Density (g/cm ³)		1.2	1.0	0.8	0.6
Cold Crushing Strength (MPa)		5.0	4.5	3.0	2.5
Refractoriness (°C)		1640	1620	1610	1600
Linear Change (%)		1480°C*2h ±0.5	1450°C*2h ±0.5	1400°C*2h ±0.5	1350°C*2h ±0.5
Thermal Conductivity (W/m·k)	400°C	0.36	0.30	0.26	0.22
	600°C	0.39	0.33	0.29	0.25
	800°C	0.41	0.36	0.31	0.28
	1000°C	0.44	0.39	0.34	0.31

02 Melting working Pool Sidewall Corner Crown Bottom

Fused Cast AZS Tiles

Description

AZS block is also called fused zirconia corundum brick which contains $\text{Al}_2\text{O}_3\text{-ZrO}_2\text{-SiO}_2$. The fused cast AZS block is made of pure alumina powder and zircon sand (consisting of 65% zirconia and 34% SiO_2). After the alumina powder and zircon sand are melted in an electric furnace, they are cast into various molds and cooled down to become white solids. Since the content of zirconia is between 33% and 41%, the fused cast AZS blocks are divided into three types: AZS-33#, AZS-36# and AZS-41#.

It has the feature of compact micro-structure, good erosion resistance, good thermal shock resistance and high compression resistance.



Technical Properties

Item		AZS33	AZS36	AZS41
Chemical Composition (%)	Al_2O_3	≥ 50.00	≥ 49.00	≥ 45.00
	ZrO_2	≥ 32.50	≥ 35.50	≥ 40.50
	SiO_2	≤ 15.50	≤ 13.50	≤ 13.00
	$\text{Na}_2\text{O}+\text{K}_2\text{O}$	≤ 1.30	≤ 1.35	≤ 1.30
Bulk density (g/cm^3)		≥ 3.70	≥ 3.75	≥ 3.88
Apparent Porosity (%)		≤ 1.4	≤ 1.2	≤ 1.2
Cold Crushing Strength (MPa)		≥ 300	≥ 300	≥ 300
Exudation Temperature of Glass Phase		≥ 1400	≥ 1400	≥ 1410
Bubble Separation Ratio (1300°C×10h)		≤ 1.5	≤ 1.4	≤ 1.0
Apparent Density (g/cm^3)	PT (RN RC N)	≥ 3.45	≥ 3.50	≥ 3.70
	ZWS (RR EVF EC ENC)	≥ 3.60	≥ 3.70	≥ 3.90
	WS (RT VF EPIC FVP DCL)	≥ 3.70	≥ 3.80	≥ 4.00
Common Size (mm)		75*400*600, 100*400*600, 250*400*600 Customized size can be provided according to customer's requirement		

Fused Cast AZS Blocks

Description

AZS block is also called fused zirconia corundum brick which contains $\text{Al}_2\text{O}_3\text{-ZrO}_2\text{-SiO}_2$. The fused cast AZS block is made of pure alumina powder and zircon sand (consisting of 65% zirconia and 34% SiO_2). After the alumina powder and zircon sand are melted in an electric furnace, they are cast into various molds and cooled down to become white solids. Since the content of zirconia is between 33% and 41%, the fused cast AZS blocks are divided into three types: AZS-33#, AZS-36# and AZS-41#.

It has the feature of compact micro-structure, good erosion resistance, good thermal shock resistance and high compression resistance.



Technical Properties

Item		AZS33	AZS36	AZS41
Chemical Composition (%)	Al_2O_3	≥ 50.00	≥ 49.00	≥ 45.00
	ZrO_2	≥ 32.50	≥ 35.50	≥ 40.50
	SiO_2	≤ 15.50	≤ 13.50	≤ 13.00
	$\text{Na}_2\text{O}+\text{K}_2\text{O}$	≤ 1.30	≤ 1.35	≤ 1.30
Bulk density (g/cm^3)		≥ 3.70	≥ 3.75	≥ 3.88
Apparent Porosity (%)		≤ 1.4	≤ 1.2	≤ 1.2
Cold Crushing Strength (MPa)		≥ 300	≥ 300	≥ 300
Exudation Temperature of Glass Phase		≥ 1400	≥ 1400	≥ 1410
Bubble Separation Ratio (1300°C×10h)		≤ 1.5	≤ 1.4	≤ 1.0
Apparent Density (g/cm^3)	PT (RN RC N)	≥ 3.45	≥ 3.50	≥ 3.70
	ZWS (RR EVF EC ENC)	≥ 3.60	≥ 3.70	≥ 3.90
	WS (RT VF EPIC FVP DCL)	≥ 3.70	≥ 3.80	≥ 4.00
Common Size (mm)		300*400*1000, 300*500*1200 300*400*1200, 400*600*1400 Customized size can be provided according to customer's requirement		

Fused Cast α - β / α / β Alumina Brick

Description

Fused cast Alumina Brick is formed by the compact structure of α alumina and β alumina crystals in a most ideal proportion which is approximately 50% and 50% respectively, where intertwined crystals of both materials result in a very dense structure. This kind of product has dense structure and no contamination to glass. It is the ideal refractory materials for channels, spouts and working ends of floating glass furnace. It has the feature of high density, high cold crushing strength and no contamination to glass.

It is mainly used for channels, spouts and working ends of floating glass furnace.



Technical Properties

Item		α - β Alumina Brick	β Alumina Brick	α Alumina Brick
Chemical Composition (%)	Al ₂ O ₃	94.0	92.0	98.0
	Na ₂ O	4.0	6.5	1.0
	SiO ₂ +CaO+Fe ₂ O ₃ +TiO ₂	≤2.0	≤1.5	≤1.0
Bulk Density (Dense Part) (g/cm ³)		3.3	3.1	3.3
Cold Crushing Strength (MPa)		200	50	200
Static Resistance to Glass Erosion (1350°C*48h, common sodium calcium glass)		0.2	--	--
0.2MPa Refractoriness Under Load		--	1700	1700
Static Resistance to Glass Erosion	PT	3.0	2.8	3.0
	WS	3.2	3.0	3.2

Zirconia Mullite Brick

Description

Zirconia mullite brick is made of high -class zircon sand and alumina powder as raw material. After mixing, shaping, drying, sintering at high temperature shuttle kiln the zircon-mullite brick has such advantages as high bulk density, high strength, good thermal shock resistance, high temperature erosion resistance and good slag resistance.

It has the feature of high density, good slag resistance and good thermal shock resistance.

It is mainly used in tank bottom, tank superstructure, perfume-bottle feeder, covers for working tanks and soda lime glass.



Technical Properties

Item		FLMZM-11	FLMZM-17	FLMZM-20	FLMZM-25	FLMZM-30
Chemical Composition (%)	Al ₂ O ₃	≥72	≥70	≥59	≥57	≥47
	ZrO ₂	≥11	≥17	≥19.5	≥25.5	≥30
	SiO ₂	≤12	≤12	≤20	≤14.5	≤20
	Fe ₂ O ₃	≤0.5	≤0.5	≤0.5	≤0.5	≤0.3
Apparent Porosity (%)		≤17	≤17	≤17	≤17	≤18
Bulk Density (g/cm ³)		≥3.1	≥3.15	≥2.95	≥3.15	≥3.10
Cold Crushing Strength (MPa)		≥90	≥90	≥100	≥120	≥100
0.1MPa Refractoriness Under Load T _{0.6} (°C)		≥1630	≥1650	≥1650	≥1650	≥1650
Permanent Linear Change On Reheating (1500°CX2h) (%)		±0.3	±0.3	±0.3	±0.3	±0.3
Thermal Expansion at (20-1000°C) (%)		0-0.6	0-0.6	0-0.6	0-0.6	0-0.6
Thermal Conductivity (average 800°C) [W/(M.K)]		≤ 2.19	≤ 2.19	≤ 2.19	≤ 2.10	≤ 2.1

Silica Brick

Description

Silica brick for glass kiln is an acid refractory material mainly made of tridymite, cristobalite and a small amount of residue. The refractory raw material is natural silica sand, and its SiO₂ content should be above 96%. Silica brick has high temperature and volume stability, no pollution to glass liquid, chemical corrosion resistance, small bulk density, and can reduce the weight of the furnace body.

It has the feature of stable volume under the high temperature, no pollution to the glass liquid, good resistance to chemical attack and small bulk density.

It's used in the roof and superstructure of glass melting tanks as well as for hot repairs.



Technical Properties

Item		Unit	Value		
			BG-96A	BG-96B	BG-95
Chemical Composition	SiO ₂	%	≥96.0	≥96.0	≥95.0
	Fe ₂ O ₃	%	≤0.5	≤0.8	≤1.0
	Al ₂ O ₃ +2(K ₂ O+Na ₂ O)	%	≤0.5	≤0.7	-
True Density		g/cm ³	≤2.33	≤2.33	≤2.33
Apparent Porosity		%	≤21	≤22	≤22
Cold Crushing Strength		MPa	≥45	≥45	≥45
Refractoriness Under Load	T _{0.5}	°C	≥1690	≥1680	≥1670
Permanent Linear Change	1450°C*2h	%	0-0.2	0-0.2	0-0.2
Residual Quartz		%	≤1	≤1	≤1

New Type Non-lime Bonded Silica Brick for Glass Kiln

Item		Value
Chemical Composition (%)	SiO ₂	≥99.0
	Al ₂ O ₃	≤0.2
	Fe ₂ O ₃	≤0.1
	CaO	≤0.1
Bulk Density (g/cm ³)		≥1.88
Apparent Porosity (%)		≤16
Cold Crushing Strength (MPa)		≥40
Refractoriness Under Load (°C)	T _{0.6}	≥1690

Sintered High Zirconia Brick

Description

High zircon brick is made from stable zircon sand is a kind of great refractory brick. It is acid refractory with the advantages of high mechanical strength, high refractoriness under load, excellent thermal shock stability, good creep resistance and good corrosion resistance to glass liquid.

It has the feature of high density, high refractoriness under load and high cold crushing strength.

It is widely used in the high erosive zones of glass furnace, chemical industry and metallurgy industry.



Technical Properties

Item	HZB -64	HZB -65
ZrO ₂ (%)	≥64	≥65
SiO ₂ (%)	≤34	≤33
Fe ₂ O ₃ (%)	≤0.5	≤0.5
Apparent Porosity (%)	≤20	≤18
Bulk Density (g/cm ³)	≥3.6	≥3.65
Cold Crushing Strength (MPa)	≥100	≥100
0.2MPa Refractoriness Under Load, T _{0.6} (°C)	≥1630	≥1650

Corundum Mullite Brick

Description

Corundum mullite brick refers to refractory products made of high-purity or relatively pure raw materials. Products made with mullite granules as aggregate have good thermal shock resistance but poorer erosion resistance. Products made with corundum sand as aggregate have good corrosion resistance.

It has the feature of high strength, good creep resistance under high temperature, good erosion resistance and good thermal shock resistance.

It is mainly used for the superstructure of regenerator of glass furnace and as lining brick of metallurgy kiln, carbon reaction furnace. It can also be used as roof brick, port brick and burner brick.



Technical Properties

Item		CM-85	CM-80	CM-75
Chemical Composition (%)	Al ₂ O ₃	≥85	≥80	≥75
	SiO ₂	≤14	≤19	≤24
	Fe ₂ O ₃	≤0.1	≤0.1	≤0.1
Cold Crushing Strength (MPa)		≥90	≥90	≥90
Bulk Density (g/cm ³)		≥3.0	≥2.8	≥2.7
Apparent Porosity (%)		≤17	≤17	≤17
Refractoriness Under Load, T _{0.6} (°C)		≥1700	≥1700	≥1700
Creep Rate at (1500°C*50h) (%)		≤0.6	≤0.6	≤0.6

03 Doghouse Wall Burner Gable Suspended Aech Tin Bath

Silica Brick

Description

Silica brick for glass kiln is an acid refractory material mainly made of tridymite, cristobalite and a small amount of residue. The refractory raw material is natural silica sand, and its SiO₂ content should be above 96%. Silica brick has high temperature and volume stability, no pollution to glass liquid, chemical corrosion resistance, small bulk density, and can reduce the weight of the furnace body.

It has the feature of stable volume under the high temperature, no pollution to the glass liquid, good resistance to chemical attack, and small bulk density.

It's mainly used in the roof and superstructure of glass melting tanks as well as for hot repairs.



Technical Properties

Item	Unit	Value		
		BG-96A	BG-96B	BG-95
Chemical Composition	SiO ₂	≥96.0	≥96.0	≥95.0
	Fe ₂ O ₃	≤0.5	≤0.8	≤1.0
	Al ₂ O ₃ +2(K ₂ O+Na ₂ O)	≤0.5	≤0.7	-
True Density	g/cm ³	≤2.33	≤2.33	≤2.33
Apparent Porosity	%	≤21	≤22	≤22
Cold Crushing	MPa	≥45	≥45	≥45
Refractoriness Under Load	T _{0.5}	≥1690	≥1680	≥1670
Permanent Linear Change	1450°C*2h	0-0.2	0-0.2	0-0.2
Residual Quartz	%	≤1	≤1	≤1

New Type Non-lime Bonded Silica Brick for Glass Kiln

Item		Value
Chemical Composition (%)	SiO ₂	≥99.0
	Al ₂ O ₃	≤0.2
	Fe ₂ O ₃	≤0.1
	CaO	≤0.1
Bulk Density (g/cm ³)		≥1.88
Apparent Porosity (%)		≤16
Cold Crushing Strength (MPa)		≥40
Refractoriness Under Load (°C)	T _{0.6}	≥1690

Sintered High Zirconia Brick

Description

High zircon brick is made from stable zircon sand is a kind of great refractory brick. It is acid refractory with the advantages of high mechanical strength, high refractoriness under load, excellent thermal shock stability, good creep resistance and good corrosion resistance to glass liquid.

It has the feature of high density, high refractories under load and high cold crushing strength.

It is widely used in the high erosive zones of glass furnace, chemical industry, and metallurgy industry.



Technical Properties

Item	HZB -64	HZB -65
ZrO ₂ (%)	≥64	≥65
SiO ₂ (%)	≤34	≤33
Fe ₂ O ₃ (%)	≤0.5	≤0.5
Apparent Porosity (%)	≤20	≤18
Bulk Density (g/cm ³)	≥3.6	≥3.65
Cold Crushing Strength (MPa)	≥100	≥100
0.2MPa Refractoriness Under Load, T _{0.6} (°C)	≥1630	≥1650

Fused Cast AZS Brick

Description

AZS block is also called fused zirconia corundum brick which contains Al₂O₃-ZrO₂-SiO₂. The fused cast AZS block is made of pure alumina powder and zircon sand (consisting of 65% zirconia and 34% SiO₂). After the alumina powder and zircon sand are melted in an electric furnace, they are cast into various molds and cooled down to become white solids. Since the content of zirconia is between 33% and 41%, the fused cast AZS blocks are divided into three types: AZS-33#, AZS-36# and AZS-41#.

It has the feature of compact micro-structure, good erosion resistance, good thermal shock resistance and high compression resistance.



Technical Properties

Item		AZS33	AZS36	AZS41
Chemical Composition (%)	Al ₂ O ₃	≥50.00	≥49.00	≥45.00
	ZrO ₂	≥32.50	≥35.50	≥40.50
	SiO ₂	≤15.50	≤13.50	≤13.00
	Na ₂ O+K ₂ O	≤1.30	≤1.35	≤1.30
Bulk density (g/cm ³)		≥3.70	≥3.75	≥3.88
Apparent Porosity (%)		≤1.4	≤1.2	≤1.2
Cold Crushing Strength (MPa)		≥300	≥300	≥300
Exudation Temperature of Glass Phase		≥1400	≥1400	≥1410
Bubble Separation Ratio (1300°C×10h)		≤1.5	≤1.4	≤1.0
Apparent Density (g/cm ³)	PT (RN RC N)	≥3.45	≥3.50	≥3.70
	ZWS (RR EVF EC ENC)	≥3.60	≥3.70	≥3.90
	WS (RT VF EPIC FVP DCL)	≥3.70	≥3.80	≥4.00
Common Size (mm)		75*400*600, 100*400*600 250*400*600, 300*400*1000 300*400*1200, 400*600*1400 Customized size can be provided according to customer's requirement		

Sillimanite Brick

Description

Sillimanite brick is a kind of firebrick made by sillimanite. Sillimanite is calcined at high temperature and converted into mullite and free silica. Generally, high temperature firing method and mud pouring method are used for production. It has the feature of good wear resistance, anti-erosion for molten glass, slag, etc., and low thermal expansion. It is primarily used for the key parts of the furnace of glass furnace, alkali-free glass fiber furnace, blast furnace hot blast stove and refractory-material tunnel kiln, etc.



Technical Properties

Item	Sillimanite Brick		
	FLM-65	FLM-60	FLM-50
Al ₂ O ₃ (%)	≥65	≥60	≥50
SiO ₂ (%)	≤32	≤37	≤45
Fe ₂ O ₃ (%)	≤0.5	≤1.0	≤1.2
Bulk Density (g/cm ³)	≥2.5	≥2.4	≥2.3
Apparent Porosity (%)	≤18	≤19	≤19
Cold Crushing Strength (MPa)	≥60	≥50	≥45
Refractoriness Under Load (0.2MPa, T _{0.6}) (°C)	≥1650	≥1600	≥1550
Thermal Shock Resistances (1100°C, water cooling) (cycles)	≥20	≥20	≥20

Fused Cast α-β Alumina Brick

Description

Fused cast Alumina Brick is formed by the compact structure of α alumina and β alumina crystals in a most ideal proportion which is approximately 50% and 50% respectively, where intertwined crystals of both materials result in a very dense structure. This kind of product has dense structure and no contamination to glass. It is the ideal refractory materials for channels, spouts and working ends of floating glass furnace. It has the feature of high density, high cold crushing strength and no contamination to glass.

It is mainly used for channels, spouts and working ends of floating glass furnace.



Technical Properties

Item		α-β Alumina Brick
Chemical Composition (%)	Al ₂ O ₃	94
	Na ₂ O	4
	SiO ₂ +CaO+Fe ₂ O ₃ +TiO ₂	≤2.0
Bulk Density (DensePart) (g/cm ³)		3.3
Cold Crushing Strength (MPa)		200
Static Resistance to Glass Erosion (1350°C*48h, common sodium calcium glass)		0.2
0.2MPa Refractoriness Under Load (°C)		1650
Bulk Density	PT	3
	WS	3.2