ZINFON
REFRACTORY

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Liaoning Xinfeng Refractory Technology Co.,Ltd.

About Us

Zinfon Refractory Technology Co., Ltd. is a refractory material supplier integrating R&D, production, processing, construction, warehousing and commerce. It has invested two manufacturing plants: **Liaoning Xinfeng Refractory Plant** and **Liaoning Yixing Refractory Technology Co.,Ltd.**, and offering various magnesia and alumina refractories including both shaped and unshaped products, raw materials and related chemical products. Those are widely used for steel–making, metallurgy, construction, nonferrous, power plant, mechinery, petroleum, chemical and other industries. We are offering premium solutions for high–temperature applications and industries.

Liaoning Xinfeng Refractory Plant locates in Fushun city of Liaoning Province, it has over 20 years' experience in technological research and production management of alumina refractory materials, a full–automatic batching and filling production line and a manufacturing workshop of castables, covering all the alumina refractories including: shaped products of high alumina series, mulite series, silicon series, phosphate series and light insulation series etc., and unshaped products of castable, self–flow, plastic materials and precast blocks, etc., as well as a a variety of raw refractories and chemical products.

Liaoning Yixing Refractory Technology Co.,Ltd., locates in Dashiqiao city of Liaoning Province, replying on the "China Magnesia Capital" – Dashiqiao city's rich magnesite mineral resource, and the local industrial cluster of refractories, we have invested two production lines of 120–meter ultra–high temperature tunnel kiln, a full–automatic crushing and grinding workshop for raw materials, with more than 100 employees and an annual output of 100,000 tons of various refractory products. Its magnesia product line covers all grades of Mg, Mg–Cr, Mg–C, Mg–Zr, Mg–Fe spinel, Mg–Al spinel, forsterite and other sintering brick products, expecially the directly bonded and semi–directly bonded Mg–Cr bricks have been successfully applied on the AOD (Argon Oxygen Decarburization), VOD (Vacuum Oxygen Decarburization), and RH (Ruhrstahl Heraeus) refining furnaces of steel mills.

We prioritize technological innovation and product development, and have established a technological R&D center and laboratory with complete sets of physical and chemical testing device for refractory materials. Additionally, we have passed the quality management system certifications, our product have been exported to the USA, Australia, Vietnam, South Korea, and Russia, and many other countries of Africa, Europe, and America.

Magnesia Brick

Magnesia bricks are made from dense burnt magnesia that provides high refractoriness, and corrosion–resistance, they are widely used in checker chamber of glass furnace, lime kiln, non–ferrous metallurgical furnaces, open heart furnace, iron mixer and EAF of steel–making, and also ferro–alloy furnace, etc.. The bricks with over 95% MgO content after the secondary–burning, have resistant against acidic/alkaline corrosion and coracidic slag as well as high thermal strength. They are widely used for the lining area of various kinds of high temperature furnaces.

Providing 1.0%–2.0% linear expansion rate at 1000–1600℃, it is approximate or linear. Among most of refractory products, the thermal conductivity of magnesia is only following the carbon–containing refractories. Within 1100 ℃ water cooling, its thermal shocks will be only 1 to 2 times. It offers strong resistance to alkaline slag of CaO and ferrite, but weak resistance to acidic slag containing SiO2, so it cannot be in direct contact with silica bricks during installation, and it’s generally separated by neutral bricks.

Physical and Chemical Specifications:

Grade		Chemical Composition (%)			Apparent Porosity (%)	Bulk Density (g/cm3)	Cold Crushing Strength (Mpa)	Refractoriness under Load ℃ @0.2MPa
		MgO %	CaO %	SiO_2 %				
Regular Magnesia Bricks	MZ–89	89	–	2.5	18	2.9	50	1480
	MZ–90	90	–	2.5	18	2.9	50	1520
	MZ–92	92	3	2	18	2.92	50	1550
	MZ–93	93	2.5	2	18	2.92	50	1560
High Purity Magnesia Bricks	MZ–94A	94	2	2	18	2.95	50	1620
	MZ–94B	94	2	2	18	2.95	50	1620
	MZ–95	95	2	2	18	2.95	50	1650
	MZ–96	96	1	2	18	2.96	50	1680
	MZ–98–1	97	0.8	0.6	16	3	60	1700
	MZ–98–2	95	0.8	2	16	3	60	1700
	MZ–97	97	0.8	1	17	2.98	60	1700

Magnesia Alumina Spinel Brick

Magnesia Alumina (Mg–Al) Spinel Brick is an alkaline refractory product with periclase as main phase and magnesia–alumina spinel clinker as basic material. The product is of good temperature vibration, good strength and volume stability in high temperature environment.

It can be used in the cement kiln, with high resistance against chrome pollution and thermal spalling.

As well as application for refractory castables for steel ladles, which greatly improve the anti–erosion ability. It is widely applied to steel–making refractory material. The preparation of high quality pre–synthertic spinel provides a new material for amorphous.

Physical and Chemical Specifications:

Type	MJ–75A	MJ–75B	MJ–80	MJ–85A	MJ–85B	MJ–93A	MJ–93B	MJ–95A	MJ–95B
MgO %	75	75	80	85	82	88	85	93	90
Al2O3 %	13	13	9	9	9	5	5	3	3
SiO2 %	0 .8	1 .2	1 .5	0 .8	2 .5	1 .0	2	1 .0	2 .5
Apparent Porosity(%) ⩽	17	17	17	16	17	16	17	16	17
Bulk Density (g/cm3) ⩾	2 .95	2 .95	2 .95	2 .95	2 .95	2 .95	2 .95	2 .95	2 .95
Cold Crushing Strength (Mpa) >	45	45	45	45	40	45	40	45	40
Refractoriness Under Load (T6.0,9) >	1700	1700	1700	1700	1700	1700	1700	1700	1700
Thermal Shock Resistance (1100℃–Water Cooling) (times) >	10	10	10	12	10	12	10	12	10
Thermal Conductivity (W/m.K)	2 .85	2 .80	2 .9	3 .0	2 .9	3 .0	3 .0	3 .0	3 .0

Magnesia Iron Spinel Brick

Magnesia Iron (Mg–Fe) Spinel Brick is made from composite spinel and high–purity magnesia, with specific mineralizer, through high–pressure molding and high–temperature sintering. As a new generation of alkaline refractory. It is mainly used in the fire zone of large dry process cement kiln.

Features:

1.In the process of operation, a layer of calcium iron or calcium aluminum iron oxide with high viscosity is formed on the hot surface of the brick, which improves the performance of hanging kiln skin and the firmness of kiln skin, and is suitable for protecting the lining brick and prolonging the service life.

2.High content of spinel is of high strength and excellent thermal shock resistance. At the same time, it can effectively resist the chemical corrosion of cement clinker liquid phase and alkali, sulfur and other gases.

3.Due to the inconsistency of thermal expansion between spinel and periclase during firing and cooling, the micro crack gap formed between them can buffer the stress impact caused by temperature change and avoid the brittle cracking of lining brick.

4.Chromium free and environmental friendly.

Physical and Chemical Specifications:

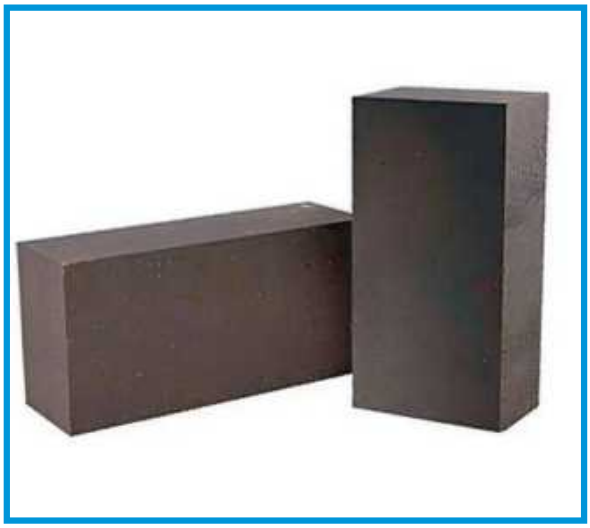
Type	MFJ–85A	MFJ–85B
MgO %	85	85
Al2O3 %	3–5	4–7
Fe2O3 %	4–6	3–5
SiO2 %	1.5	1.8
Bulk Density (g/cm3) >	2.98	2.96
Apparent Porosity(%) ≤	16	16
Cold Crushing Strength (Mpa) >	65	65
Refractoriness Under Load (T6.0,9) >	1700	1700
Thermal Shock Resistance (950℃–Air Cooling) (times) >	100	90
Thermal Conductivity (W/m.K)	2.6	2.6
Thermal Expansion (1400℃) %	1.6	1.6

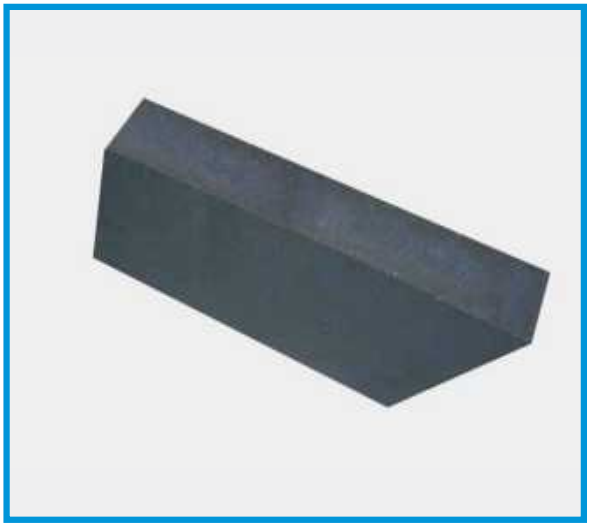
Magnesia Chrome Brick

Magnesia Chrome Brick are made from sintered magnesia, fused magnesia, and fused magnesia–chrome as raw materials, through high pressure molding, drying and high temperature firing.

Featured with less impurity content, high bulk density, good slag resistance, strong erosion resistance, high temperature volume stability, good thermal shock resistance. Magnesia chrome bricks refractoriness is more than 2000℃, its refractoriness under load is generally above 1550℃. It is commonly applied for non–ferrous furnaces, cement kilns,glass furnaces, EAF, VOD, AOD, RH etc.

Magnesia Chrome Brick includes Regular Mg–Cr Brick, Direct–bonded Mg–Cr Brick,Semi–rebond Mg–Cr brick,Rebonded Mg–Cr Brick, etc..





Regular Bonded Mg–Cr Brick

Regular Bonded Mg–Cr Brick is made from sintered magnesia, fused magnesia, and fused magnesia–chrome as raw materials, through high pressure molding, drying and high temperature burning.

Specfications \ Grade		MGe–8	MGe–10	MGe–12	MGe–16	MGe–18
Chemical Composition (%)	MgO %	70	68	65	63	60
	SiO2 %	3	3	3	3	3
	Cr2O3 %	8	10	12	16	18
Apparent Porosity (%)		22	22	22	20	20
Bulk Density (g/cm3)		2.95	3.00	3.05	3.10	3.15
Cold Crushing Strength (MPa)		35	35	35	35	35
Refractoriness under Load °C @0.2MPa		1550	1580	1600	1600	1650
Thermal Shock Resistance 950°C (Times)		4	4	4	4	4

Direct–Bonded Mg–Cr Brick

Direct–Bonded Mg–Cr Brick is made of pure raw materials after burning. Direct combination refers to that is more direct contact area between chrome ore particles and magnesia. There is less SiO2 in raw materials (within 1%–25%), with a small amount of silicate generation . The silicate is extruded into the corner of solid particles under high temperature burning. It features high thermal strength and resistance against slag, erosion, scouring, corrosion, as well as excellent thermal shock stability and high volume stability at temperature upto 1800℃.

Specfications \ Grade		DMGe–10	DMGe–12	DMGe–16	DMGe–18	MGe–20
Chemical Composition (%)	MgO %	72	70	68	63	58
	SiO2 %	2.5	2.5	2.5	2.5	2.5
	Cr2O3 %	10	12	16	18	20
Apparent Porosity (%)		18	18	18	18	18
Bulk Density (g/cm3)		3.05	3.10	3.10	3.15	3.2
Cold Crushing Strength (MPa)		40	40	40	40	40
Refractoriness under Load °C @0.2MPa		1650	1650	1700	1700	1700
Thermal Shock Resistance 950°C (Times)		5	5	5	5	6

Semi–Rebonded Mg–Cr Brick

Semi–Rebonded Mg–Cr Brick is made by electrofusion to melt magnesia–chrome mixture powder, then electrofused magnesia–chrome powder is crushed into a paticular particle size range, passed through pressing machine, and finally it will be sintered by high temperature process.

Specfications \ Grade		DMGe–16	DMGe–18	DMGe–20	DMGe–22	MGe–26
Chemical Composition (%)	MgO %	63	60	58	55	50
	SiO2 %	1.5	1.5	1.5	2.0	2.0
	Cr2O3 %	16	18	20	22	26
Apparent Porosity (%)		16	16	16	16	16
Bulk Density (g/cm3)		3.15	3.20	3.20	3.22	3.22
Cold Crushing Strength (MPa)		40	40	40	40	40
Refractoriness under Load °C @0.2MPa		1700	1700	1700	1700	1700
Thermal Shock Resistance @ 950°C (Times)		3	3	4		
Thermal expansion % 1400°C		1	0.9	0.9		
Thermal conductivity 400℃ (W/m.k)					2.2	

Fused Mg–Cr Brick

Fused Mg–Cr Brick is completely fused by placing the mixture of magnesia and chrome ore in an electric arc furnace, injecting the melt liquid into a refractory mold for casting. It offers further high temperature strength and slag corrosion resistance.

Specfications \ Grade		DMGe–18	DMGe–20	DMGe–24
Chemical Composition (%)	MgO %	60	58	50
	SiO2 %	1.5	1.5	1.5
	Cr2O3 %	18	20	24
Apparent Porosity (%)		15	15	15
Bulk Density (g/cm3)		3.20	3.22	3.25
Cold Crushing Strength (MPa)		50	50	50
Refractoriness under Load °C @0.2MPa		1700	1700	1700

Magnesia Carbon Brick

Magnesia Carbon (MgO–C) Brick is made from crystalline magnesium oxide, alumina and graphite as the main raw materials, applying phenolic resin as the anchoring agent and a pressing & drying process. It provides excellent resistance to spalling, rust and excellent oxidation resistance. It can be used in electric furnaces and steel making furnace. It is mainly used in the converter lining, which is in direct contact with molten steel and slag. It offers high thermal strength, strong slag resistance, high refractoriness and thermal shock stability.

Physical and Chemical Specifications:

Type	Apparent Porosity % ⩽	Bulk Density g/cm³	Cold Crushing Strength Mpa ⩾	MgO% ⩾	C% ⩾
MT–5A	5	3.15 ± 0.08	50	85	5
MT–5B	6	3.10 ± 0.08	50	84	5
MT–5C	7	3.00 ± 0.08	45	82	5
MT–8A	4.5	3.12 ± 0.08	45	82	8
MT–8B	5	3.08 ± 0.08	45	81	8
MT–8C	6	2.98 ± 0.08	40	79	8
MT–10A	4	3.10 ± 0.08	40	80	10
MT–10B	4.5	3.05 ± 0.08	40	79	10
MT–10C	5	3.00 ± 0.08	35	77	10
MT–12A	4	3.05 ± 0.08	40	78	12
MT–12B	4	3.02 ± 0.08	35	77	12
MT–12C	4.5	3.00 ± 0.08	35	75	12
MT–14A	3.5	3.03 ± 0.08	40	76	14
MT–14B	3.5	2.98 ± 0.08	35	74	14
MT–14C	4	2.95 ± 0.08	35	75	14
MT–16A	3.5	3.00 ± 0.08	35	74	16
MT–16B	3.5	2.95 ± 0.08	35	72	16
MT–16C	4	2.90 ± 0.08	30	70	16
MT–18A	3	2.97 ± 0.08	35	72	18
MT–18B	3.5	2.92 ± 0.08	30	70	18
MT–18C	4	2.87 ± 0.08	30	69	18

Fireclay Brick

Fireclay bricks are alumina silicate refractory with refractoriness of SK 32–34 and 35–45% alumina. The bricks are made from various raw materials of fire clay, calcined chamotte, mullite etc. They are highly resistant to abrasion, spalling ond corrosion. With low porosity, high strength and good resistance to thermal spalling, abrasion and creep. They are generally applied for the linings of Coke Ovens, Glass Furnace, Cement Rotary Kilns, Lime Kilns, Various incinerators, Reheating Furnaces etc..

Physical and Chemical Specifications:

Specfications \ Grade		DN–12	DN–14	DN–17	SK–34	SK–33	SK–32
Refractoriness (SK)		35	34	34	34	33	32
Apparent Porosity (%)		13	14	17	23	24	26
Bulk Density (g/cm3)		2.40	2.34	2.25	2.20	2.15	2.00
Cold Crushing Strength (MPa)		70	65	50	35	30	20
Thermal Linear Expansion(%) @1000deg		0.5	0.6	0.6	0.6	0.6	0.6
Reheating Linear Change(%) @1400deg x2hrs		± 0.1	± 0.2	± 0.2	± 0.3	± 0.5	± 0.5
Refractoriness under Load °C @0.2MPa		1,500	1,470	1,430	1,350	1,300	1,250
Chemical Composition (%)	Al_2O_3	45	45	42	40	38	35
	Fe_2O_3	1.3	1.5	1.7	2.0	2.2	3.0

High Alumina Brick

High Alumina bricks are alumina silicate refractory with refractoriness of SK35 and 46% to 80% alumina, and are made from high purity of bauxite and fireclay, providing excellent mechanical strength, good resistance to thermal spalling and chemical attack by acid/alkali erosion and slags. They are generally applied for the linings of Nonmetal Smelting Furnace, Steel Ladle, Cement Rotary Kilns, Lime Kilns, Various incinerators, Reheating Furnaces etc..

By Chinese standard, according to the content of Al2O3 in high alumina refractory bricks,there are three grades: Grade I—Al2O3 content >75%; Grade II—Al2O3 content is 60–75%; Grade III—Al2O3 content is 48–60%.

Physical and Chemical Specifications:

Specfications \ Grade		LZ–80	LZ–75	LZ–70	LZ–65	LZ–60	LZ–55	LZ–48
Al_2O_3	≥	80	75	70	65	60	55	48
Apparent Porosity (%)	≤	21	24	24	24	26	22	22
Cold Crushing Strength (MPa)	≥	70	60	55	50	45	45	40
Refractoriness under Load °C @0.2MPa	≥	1530	1520	1510	1500	1430	1450	1420
Reheating Linear Change %		1500 °C x 2hrs –0.4–0.2		1450 °C x 2hrs –0.4–0.1				

Ultral High Alumina Brick

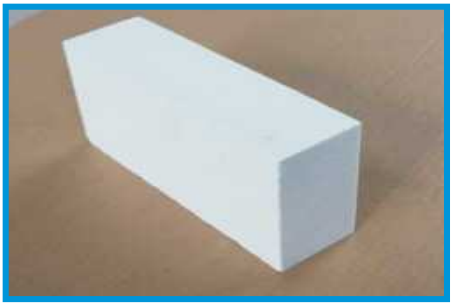
Ultral High Alumina Bricks are made by burning from andalusite,mullite, sillimanite and corundum etc. as raw material. Providing ultra high strength and resistance against chemical attack by acid/alkali corrosion and slags, as well as high refractoriness under load, and thermal shock resistance under high temperature. They are generally applied for glass furnace, rotary kilns and various of nonferrous metal metallugical furnace.

Physical and Chemical Specifications:

Specfications \ Grade		LZ–80	LZ–75	LZ–70	LZ–60
Refractoriness (SK)		39	39	38	37
Apparent Porosity (%)		17	18	18	18
Bulk Density (g/cm3)		2.75	2.65	2.65	2.50
Cold Crushing Strength (MPa)		80	70	70	60
Thermal Linear Expansion(%) @1000deg		0.65	0.65	0.55	0.53
Reheating Linear Change(%) @1400deg x2hrs		± 0.2	± 0.2	1450°Cx2h ± 0.2	1450°Cx2h ± 0.2
Refractoriness under Load °C @0.2MPa		1,670	1,650	1,600	1,580
Chemical Composition (%)	Al_2O_3	80	75	70	60
	Fe_2O_3	0.8	1.0	1.2	1.2

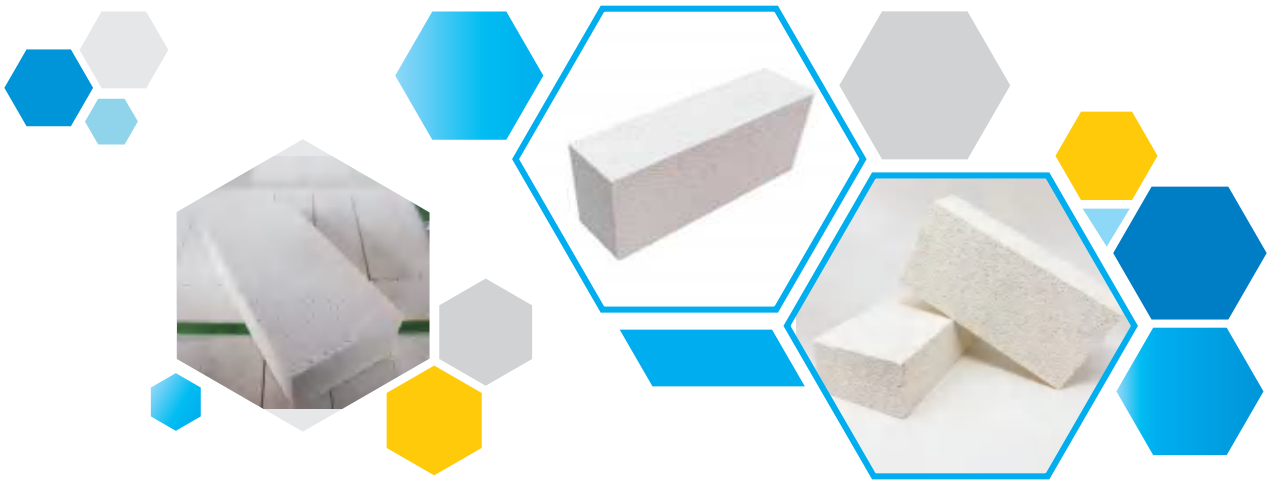
Corundum Brick

Corundum Bricks are made from calcined alumina, mullite, high purity corundum, with stable quality and durability, low porosity, high thermal strength and resistance against acidic/alkaline corrosion, creep resistance, providing high volume stability at high temperature. Corundum Bricks are widely used for carbon black reactors in the chemical industry, petrochemical gasifier, and high–temperature kilns in the ceramic industry.



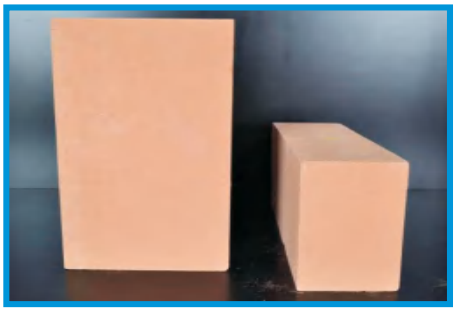
Physical and Chemical Specifications:

Specfications \ Grade		GYZ–98	GYZ–95	GYZ–90	GYZ–85
Chemical Composition (%)	Al_2O_3	98.5	95	90	85
	SiO_2	0.3	3.0	9.0	18
	Fe_2O_3	0.2	0.2	0.5	0.5
Apparent (%)		18	18	18	20
Bulk density g/cm3		3.0	2.95	2.9	2.75
Cold Crushing strength MPa		90	80	80	70
Refractoriness under Load(0.2MPa ℃)		1700	1650	1650	1700
Reheating Linear Change(%)1600℃ × 3h		0.1	0.2	0.2	0.3



Light Insulation Firebrick

The bulk density of lightweight heat–insulating brick is 0.60 ~1.25g/cm3. Working temperature range from 900℃ to 1600℃. Each grade of products has unique design to meet different thermal, physical and chemical demands. Made from good quality and super–pure raw materials, with strictly classified filings according to the grades. Each face of the brick is machined grinding to the required accurate size. It offers low fuel costs, construction costs and reducing the amount of time in the high temp furnace.



Physical and Chemical Specifications:

Specfication	B–1	B–2	B–3	B–4	B–5	B–6	B–7	C–1	C–2	C–3
Reheating Shrinkage Temperature ℃	900	1,000	1,100	1,200	1,300	1,400	1,500	1,300	1,400	1,500
Bulk density g/cm3 ⩾	0.70	0.70	0.75	0.80	0.80	0.90	1.00	1.10	1.20	1.25
Compressive strength Mpa ⩽	25	25	25	25	25	30	30	50	70	100
Thermal Conductivity W/m.k(350 ± 25℃) ⩾	0.17	0.18	0.20	0.22	0.23	0.27	0.31	0.30	0.38	0.45

Mullite Insulation Brick

With high refractoriness, mullite insulation bricks can be directly exposed to flames. They have the characteristics of light weight, high strength, low thermal conductivity, good thermal shock resistance and significant energy–saving effects.

Physical and Chemical Specifications:

Specfications \ Grade	JM–23	JM–26	JM–28	JM–30
Al2O3 %	40	55	65	70
Fe2O3 %	1.0	0.9	0.7	0.6
Bulk Density (g/cm3)	0.55	0.85	0.95	1.05
Cold Crushing Strength (Mpa)	1.0	2.0	2.5	3.0
Reheating Linear Change (%) ℃*12 hr	1230℃	1400℃	1510℃	1620℃
Thermal conductivity 350℃(W/m.k)	0.20	0.30	0.39	0.45
Refractoriness under Load℃@0.05MPa	1080	1250	1360	1470

Fused AZS Bricks

Electric fused zirconium corundum bricks, or AZS bricks for short, are made and mixed from three chemical components of Al2O3, ZrO2 and SiO2. Below, the model number AZS 33, 36 and 41 are named according to the content of Al2O3. For example, AZS33 refers to the fused zirconium corundum brick with an alumina content of 33%.

Physical and Chemical Specifications:

Specfication \ Grade		AZS-33	AZS-36	AZS-41
SiO_2 %		15	13	12
Al_2O_3 %		Rest	Rest	Rest
ZrO_2 %		33.5	36.5	41
$Fe_2O_3 + TiO_2 + CaO + MgO + Na_2O + K_2O$ %		⩾2.0	⩾2.0	⩾2.0
Bulk Density (g/cm3)		3.80	1400	4.05
Apparent Porosity %		0.7	0.8	0.6
Initial Precipitation Temperature of Vitreous Phase ℃		1400	1400	1400
Vitreous Phase Exudation (1500 ℃*4 hr) %		2.0	2.3	1.5
Anti-molten Glass Erosion Rate under Static Condition mm/24 hr (1500℃*36hr, Odinary Soda Lime Glass)		1.4	1.3	1.2
Bubble Release Rate %(1300 ℃*10 hr, Odinary Soda Lime Glass)		1.2	1.0	0.6
Typical Bulk Density g/cm3	Ordinary / Inclined Casting	3.50	3.55	3.65
	Quasi-non Bubble Casting	3.70	3.80	3.90
	Non-buble Casting	3.80	3.85	4.00

AZS-33

AZS-33 has good corrosion resistance to liquid glass, is not easy to produce stones or other defects, and has low possibility of producing small bubbles. Therefore, AZS-33 bricks are widely used in glass kilns, mainly applicable to the upper structure of the melting pool, the pool wall bricks and paving bricks of the working pool, and the material channel.

AZS-36

In addition to having the same eutectic body as the AZS33 brick, AZS36 brick is suitable for areas with high liquid glass flow rate and high temperature, such as melting pool wall bricks, paving bricks, charging port bricks, etc., because of the increase of more interlocking zirconia crystals and the decrease of glass phase content.

AZS-41

AZS41 brick contains more uniformly distributed zirconia crystals besides the eutectic of silicon oxide and aluminum oxide. In the zirconia corundum brick system, its corrosion resistance is the best. Therefore, the key parts of the glass furnace were selected to balance the life of these parts with that of other parts.

AZS41 is the most excellent product in the melting and casting AZS series, with extremely high resistance to liquid glass corrosion and extremely high glass phase seepage temperature, and extremely low pollution to liquid glass. It is widely used in key parts such as tank wall, feeding inlet corner, flow hole, kiln ridge, tank bottom bubbling and all electric melting furnace at the hot spot of glass furnace.

Silica Insulation Brick

Silica bricks are acidic refractory with over 94% silica content and a bulk density of 2.38 g/cm3. They are resistant against acidic/alkaline corrosion and coracidic slag as well as high thermal strength. It has a load softening temperature of 1620–1670℃, which is stable in long operation at high temperature 600℃ and above, without crystalline transformation. Low temperature expansion is coefficient, thermal shock resistance is higher.

Silica bricks are mainly used for the partition wall of carbonization and combustion chamber of coke oven, heat storage chamber and slag chamber of steel blast furnace, even heat furnace, glass melting kiln and ceramic firing kiln, also used in the high temperature bearing part of hot blast furnace and acid blast furnace roof.

Physical and Chemical Specifications:

Specfication \ Grade		GZ–96	GZ–95	GZ–94
Chemical Composition (%)	SiO_2	⩾96	⩾95	⩾94
	Fe_2O_3	⩽1.0	⩽1.2	⩽1.4
Apparent Porosity (%)		⩽22	⩽22	⩽22
Bulk density,g/cm3		⩽2.34	⩽2.34	⩽2.34
Cold Crushing strength MPa		⩾30	⩾30	⩾30
Refractoriness under Load (0.2MPa ℃)		⩾1660	⩾1650	⩾1640

Silicon Carbide Brick

Silicon Carbide (SiC) Bricks are advanced refractory materials made of SiC as raw material, with many outstanding properties such as high strength at high and normal temperature, high thermal conductivity and low thermal expansion coefficient, high thermal shock resistance and temperature wear resistance, high resistance to chemical corosion, etc. Widely used in steel industry, non–ferrous metallurgy, petrochemical industry, electric power, ceramics and aerospace fields.

SiC bricks includes several types: Oxide Bonded (Clay Bonded, Mullite Bonded, SiO2 Bonded), Nitride Bonded (Si3N4 Bonded, Sialon Bonded), Self Bonded (β –SiC Bonded and Recrystallized SiC) and etc..

Clay–bonded SiC Bricks

Clay–bonded SiC Bricks are made from coarse, medium and fine silicon carbide in accordance with the particle size ratio, first dry mixed before adding clay and shaped by brick press. After drying for 2–4 days, the bricks are burnt in a tunnel kiln with a firing temperature of 1400℃. This kind of brick has high thermal conductivity, small coefficient of thermal expansion, thermal shock resistance and good wear resistance.

High Alumina SiC Bricks

High Alumina SiC Bricks are applied to the billet with fine powder, the addition amount is 30%, the final burning temperature is 1370–1480℃, and the heat preservation is 6–8 hours. This kind of refractory brick has good thermal shock resistance, good thermal conductivity and high strength.

Corundum SiC Bricks

Corundum SiC Bricks are made from brown corundum as aggregate, add 10% silicon carbide fine powder, phosphoric acid as binding agent, pressed and shaped by brick press, dried and fired by high temperature, firing temperature is 1450℃. This corundum silicon carbide brick has high strength, good wear resistance, strong resistance to slag erosion and good resistance to thermal shock.

Physical and Chemical Specifications:

Specfications \ Type	Oxide bond SiC brick	Green SiC brick	Corundum SiC brick	Mullite SiC brick	High alumina SiC brick
SiC, %	⩾90	⩾90	⩾70	⩾65	⩾20
Al2O3, %	–	–	–	⩾20	⩾55
Fe2O3, %	⩽0.6	⩽0.6	⩽1.0	⩽1.0	⩽1.5
Bulk density, g/cm3	⩾2.6	⩾2.6	⩾2.7	⩾2.3	⩾2.5
Apparent porosity, %	⩽17	⩽17	⩽22	⩽20	⩽20
Cold crushing strength, MPa	⩾100	⩾100	⩾100	⩾80	⩾80
Refractoriness under load (0.2MPa,0.6%)	⩾1650	⩾1650	⩾1700	⩾1600	⩾1600