Magnesia-Alumina Spinel Brick

Description:

Magnesia-alumina spinel bricks are refractory materials primarily composed of magnesite (MgO) and bauxite (Al_2O_3), which form the spinel phase ($MgAl_2O_4$)through sintering. Spinel is a mineral with a high melting point, excellent thermal stability, and corrosion resistance. The adding of spinel enhances the overall performance of the bricks, especially high-temperature resistance, corrosion resistance and thermal shock resistance.

Technical Data:

Item	Grade			
	MA—90	MA—85	MA—80	MA—75
ω(MgO)/%≥	90	85	80	75
ω(Al_2O_3)/%	3～8	5～12	8～17	8～12
Apparent Porosity/%≤	17	17	16	19
Bulk Density/(g/cm^3)≥	2.90	2.95	2.95	2.85
CCS/MPa≥	45	45	55	40
	40	40	50	35
R.U.L./ 0.2 MPa $T_{0.6}$/℃≥	1700	1700	1700	1650
Thermal Shock Resistance(1100℃~cold)≥	3	8	12	8

Magnesia-Ferrite Spinel Brick

Description:

Magnesia-Ferrite spinel brick is a high-performance refractory material mainly composed of pleonaste and high-purity magnesia or fused magnesia, with the addition of additives such as iron powder and alumina micro-powder. It is manufactured through high-pressure forming and high-temperature sintering processes. These bricks feature high compressive and mechanical strength, excellent thermal shock stability, strong corrosion resistance, low thermal conductivity, superior kiln coating adherence, and green environmental protection without pollution.

Technical Data:

Item	Grade	
	MFS-85	MFS-80
MgO / % ≥	85.0	80.0
SiO_2 / % ≥	1.5	2.5
Fe_2O_3 / %	5~8	5~8
Bulk Density / (g/cm^3) ≥	3.2	3.1
Open Porosity / % ≤	15	18
CCS / MPa ≥	120	100
R.U.L (0.2 MPa $T_{0.6}$) / ℃ ≥	1680	1650
TSR (1100℃~cold) ≥	5	5

Magnesia-Chrome Brick

Description:

Magnesia-chrome bricks are refractory products mainly composed of magnesium oxide (MgO) and chromium oxide (Cr_2O_3), with periclase and spinel as the primary mineral components. These bricks have high refractoriness, high-temperature strength, strong resistance to alkaline slag erosion, excellent thermal stability, and a certain degree of adaptability to acidic slags.

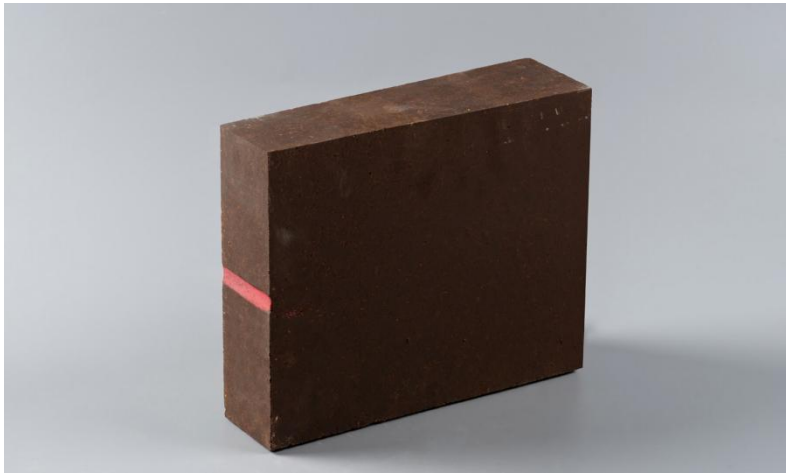
Technical Data:

Item	Grade					
	MGe-16A	MGe-16B	MGe-12A	MGe-12B	MGe-8A	MGe-8B
ω(MgO)/%≥	50	45	60	55	65	60
ω(Cr_2O_3)/%≥	16	16	12	12	8	8
Apparent Porosity/%≤	19	22	19	21	19	21
CCS /MPa≥	35	25	35	30	35	30
	min30	min20	min30	min25	min30	min25
Refractoriness Under Load / 0.2 MPa $T_{0.6}$/℃	1650	1550	1650	1550	1650	1530

Direct-bonded Magnesia-Chrome Brick

Description:

Direct bonded magnesia-chrome brick is a kind of refractory products primarily composed of periclase and magnesia-chromite spinel, bonded directly. This brick is made from high-purity sintered magnesia with less than 2% $SiO_2$and chromite as raw materials, produced through high-temperature sintering. The product has low impurity content and is fired at high and ultra-high temperatures, resulting in low porosity, high compressive strength, excellent wear resistance, corrosion resistance, thermal shock resistance, and spalling resistance.



Technical Data:

Item	Grade						
	ZMGe-16A	ZMGe-16B	ZMGe-12A	ZMGe-12B	ZMGe-8A	ZMGe-8B	DMGe-6
ω(MgO)/%≥	60	58	68	65	75	70	75
ω(Cr_2O_3)/%≥	16	16	12	12	8	8	6
ω(SiO_2)/%≤	1.5	2.5	1.5	2.5	1.5	2.5	2.5
Apparent Porosity/%≤	18	18	18	18	18	18	18
CCS/MPa≥	40	40	45	45	45	45	45
	min35	Min35	min35	Min35	min35	min35	min35
R.U.L./ 0.2 MPa $T_{0.6}$/℃	1670	1650	1700	1650	1700	1650	1700

Fused Semi-rebonded Magnesia-Chrome Brick

Description:

Fused semi-rebonded magnesia-chrome bricks are made from fused magnesia-chrome spinel, high-purity magnesia, high-purity chrome concentrate, and a composite high-temperature toughening agent. They are formed under high pressure and sintered at high temperature. These bricks exhibit excellent high-temperature performance and thermal stability, high mechanical strength, superior corrosion resistance, and outstanding anti-spalling performance.

Technical Data:

Item	Grade									
	BMGe-26	BMGe-24	BMGe-22	BMGe-20A	BMGe-20B	BMGe-18	BMGe-16 A	BMGe-16B	BMGe-12A	BMGe-12B
ω(MgO)/%≥	50	50	55	58	55	58	60	55	68	65
ω(Cr_2O_3)/%≥	26	24	22	20	20	18	16	16	12	12
ω(SiO_2)/%≤	2.0	2.0	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.5
Apparent Porosity/%≤	16 (15)	16 (15)	16 (15)	16 (15)	16 (15)	17 (15)	16 (15)	17 (16)	16 (15)	17 (16)
CCS /MPa≥	40(45)	40(45)	40(45)	40(45)	35(40)	40(45)	40(45)	35(40)	40(45)	35(40)
	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min30 (35)	min35 (40)	min35 (40)	min30 (35)	min35 (40)	min30 (35)
Refractoriness Under Load / 0.2 MPa $T_{0.6}$/℃	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700

Fused Re-bonded Magnesia-Chrome Brick

Description:

Fused re-bonded magnesia-chrome brick is generally made by first melting lightly burned magnesia and chromite in an electric arc furnace to produce fused magnesia-chrome sand. Then this sand is crushed, ground, proportioned, shaped and sintered to manufacture the final product These bricks have a high degree of direct bonding, low impurity content, resulting excellent high-temperature strength, superior high-temperature volume stability, as well as outstanding corrosion and erosion resistance.

Technical Data:

Item	Grade								
	DMGe-26	DMGe-24	DMGe-22	DMGe-20A	DMGe-20B	DMGe-16A	DMGe-16B	DMGe-12A	DMGe-12A
ω(MgO)/%≥	50	50	55	58	58	62	58	68	65
ω(Cr_2O_3)/%≥	26	24	22	20	20	16	16	12	12
ω(SiO_2)/%≤	1.5	1.5	1.5	1.5	2.0	1.5	2.0	1.5	2.0
Apparent Porosity/%≤	16（15）	16（15）	16（15）	16（15）	17（15）	16（15）	17（16）	16（15）	17（16）
CCS/MPa≥	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)
	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)
R.U.L./ 0.2 MPa $T_{0.6}$/℃	1700	1700	1700	1700	1700	1700	1700	1700	1700

Corundum Brick

Description:

Corundum brick is an excellent refractory brick with corundum as the main crystal phase and Al_2O_3 content of more than 95%. It is made of industrial alumina or high-alumina bauxite as the main raw material and is formed by high-temperature sintering. They have good thermal shock stability, high mechanical strength, good wear resistance, and excellent corrosion resistance.

Technical Data:

Items		Grades			
		GYZ-99A	GYZ-99B	GYZ-98	GYZ-95
$\omega(Al_2O_3)$ / %	μ_0	≥99.0	≥99.0	≥98.0	≥95.0
$\omega(SiO_2)$ / %	μ_0	≤0.15	≤0.2	≤0.5	——
$\omega(Fe_2O_3)$ / %	μ_0	≤0.10	≤0.15	≤0.20	≤0.30
Open Porosity / %	μ_0	≤19	≤19	≤19	≤20
Bulk Density / (g/cm^3)	μ_0	≥3.20	≥3.15	≥3.15	≥3.10
CCS / MPa	μ_0	≥80	≥80	≥80	≥100
HPLC (1600℃×3h) / %	X_{min}	-0.2~+0.2	-0.2~+0.2	-0.2~+0.2	-0.3~+0.3
R.U.L (0.2 MPa ,0.6%) / ℃	X_{min}	1700	1700	1700	1700

Andalusite Brick

Description:

Andalusite bricks are made of raw materials such as andalusite and mullite, which are crushed, batched, semi-dry high-pressure molded, dried and sintered at a high temperature of about 1500℃.

The main characteristics of andalusite bricks are high refractoriness and stability at 1800℃. In addition, they have excellent thermal shock stability and creep resistance, high load softening temperature, and chemical corrosion resistance.

Technical Data:

Items		Grades					
		RH155	RH150	RH145	RH140	RH135	RH130
$\omega(Al_2O_3)$ / %	$\mu_0\geq$	69	65	61	57	53	49
$\omega(Fe_2O_3)$ / %	$\mu_0\leq$	1.0	1.0	1.2	1.2	1.5	1.5
$\omega(TiO_2)$ / %	$\mu_0\leq$	0.5	0.5	0.5	0.6	0.6	0.6
Open Porosity / %	$\mu_0\leq$	20(22)	20(22)	20(22)	20(22)	20(22)	20(22)
Density / (g/cm^3)		2.55-2.70	2.50-2.65	2.45-2.60	2.40-2.55	2.35-2.50	2.30-2.45
		(2.50-2.65)	(2.45-2.60)	(2.40-2.55)	(2.35-2.50)	(2.30-2.45)	(2.25-2.40)
CCS / MPa	$\mu_0\geq$	55(50)	55(50)	50(45)	50(45)	40(35)	40(35)
	X_{min}	45	45	40	40	30	30
0.2 MPa R.U.L / ℃	$\mu_0\geq$	1700	1700	1650	1600	1520	1450
HPLC / %		(1500℃×2h)±0.2	(1500℃×2h)±0.2	(1500℃×2h)±0.2	(1450℃×2h)±0.2	(1450℃×2h)±0.2	(1450℃×2h)±0.2
CMOR(0.2MPa, 0~50h) / %	$\mu_0\leq$	0.8 (1550℃)	0.8 (1550℃)	0.8 (1450℃)	0.8 (1400℃)	0.8 (1350℃)	0.8 (1300℃)

Note: The values in brackets are checkered bricks or handmade bricks

High-Alumina Brick

Description:

High-alumina brick is a kind of neutral refractory materials made from bauxite or other raw materials with a high alumina (Al_2O_3) content, which contain more than 48% alumina and is formed and calcined at high temperatures. They offer excellent high-temperature resistance, corrosion resistance, thermal stability, and slag resistance, making them particularly suitable for equipment and processes running at high temperatures for a long time.

Technical Data:

Item	Grade						
	LZ-80	LZ-75	LZ-70	LZ-65	LZ-55	LZ-48	LZ-65G
$\omega(Al_2O_3)$ / %	≥80	≥75	≥70	≥65	≥55	≥48	≥65
Open Porosity / %	≤21(23)	≤24(26)	≤24(26)	≤24(26)	≤22(24)	≤22(24)	≤19
CCS / MPa	≥70(60)	≥60(50)	≥55(45)	≥50(40)	≥45(40)	≥40(35)	≥60
	≥60(50)	≥50(40)	≥45(35)	≥40(30)	≥35(30)	≥30(35)	≥50
R.U.L. (0.2 MPa $T_{0.6}$) / ℃	≥1530	≥1520	≥1510	≥1500	≥1450	≥1420	≥1500
HPLC / %	1500℃×2 h 0.4～0.2			1450℃×2 h 0.4～0.1			1450℃×2 h 0.2～0

Remarks: The data in parentheses are for the lattice bricks and shaped bricks.

Fireclay Brick

Description:

Fireclay brick is a type of refractory material made primarily from refractory clay, which is fired at high temperatures. The main component is aluminosilicate. These bricks have excellent fire resistance, thermal stability, and slag resistance. They are generally categorized into: fireclay bricks, dense clay bricks, low-creep clay bricks, and thermal shock-resistant clay bricks.

Technical Data:

Item	Grade				
	PN-42	PN-40	PN-35	PN-30	PN-25
$\omega(Al_2O_3)$ / % ≥	42	40	35	30	25
$\omega(Fe_2O_3)$ / % ≤	2.0	—	—	—	—
Open Porosity / % ≤	20(22)	24(26)	26(28)	23(25)	21(23)
CCS / MPa ≥	45(35)	35(30)	30(25)	30(25)	30(25)
	35(25)	25(20)	20(15)	20(15)	20(15)
R.U.L. (0.2 MPa $T_{0.6}$)/ ℃ ≥	1400	1350	1320	1300	1250
HPLC / %	1400℃×2 h —0.4～0.1	1350℃×2 h —0.4～0.1	1300℃×2 h —0.4～0.1	1300℃×2 h —0.4～0.1	1250℃×2 h —0.4～0.1

Poly-light High-Alumina Brick

Description:

Poly-light high-alumina brick is a new type of lightweight insulation material made from high-alumina bauxite as the main raw material, with a certain amount of combustible substances or foaming agents added, and then processed through high-temperature sintering. Poly-light high-alumina bricks have the advantages of low density, high mechanical strength, excellent fire resistance, strong slag resistance, and thermal shock stability. As a result, they are widely used in high-temperature fields such as furnaces, metallurgy,etc. They are generally used for furnaces lining and insulation layers, as well as areas that are not subject to intense high-temperature molten material erosion and scouring. When in direct contact with flames, the surface contact temperature should not exceed 1350°C.

Technical Data:

Item	Grade					
	JLG-1.3L	JLG-1.0L	JLG-0.8L	JLG-0.7L	JLG-0.6L	JLG-0.5L
$\omega(Al_2O_3)/\%\geq$	72	60	55	50	50	48
$\omega(Fe_2O_3)/\%\leq$				1.5		
Bulk Density/$(g/cm^3)\leq$	1.3	1.0	0.8	0.7	0.6	0.5
CCS/MPa≥	5	3	2.5	2.0	1.5	1.2
	min4.5	min2.5	min2.0	min1.5	min1.2	min1.0
HPLC/%(T/℃×12 h)	1700℃ -1.0～0.5	1600℃ -1.0～0.5	1500℃ -1.0～0.5	1400℃ -1.0～0.5	1350℃ -2.0～1.0	1350℃ -2.0～1.0
Thermal Conductivity W/m·k≤ (350±25)℃	0.6	0.50	0.35	0.30	0.25	0.20

Light Weight Fireclay Brick

Description:

Light weight fireclay brick, also known as fireclay insulating brick, is a type of lightweight refractory material made from refractory clay with an alumina content of 30% to 46%. The characteristics of these bricks include low density, low thermal conductivity, high refractoriness and good thermal insulation performance, making them primarily used in the areas that need heat insulation in various kilns.

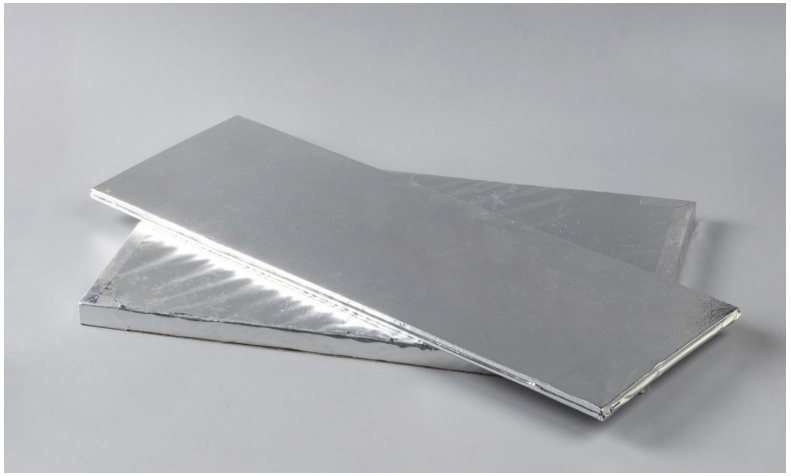
Technical Data:

Item	Grade						
	NG140-1.5	NG135-1.3	NG135-1.2	NG130-1.0	NG125-0.8	NG120-0.6	NG115-0.5
Bulk Density/(g/cm^3)	≤1.5	≤1.3	≤1.2	≤1.0	≤0.8	≤0.6	≤0.5
CCS / MPa	≥6.0	≥5.0	≥4.5	≥3.5	≥2.5	≥1.3	≥1.0
	5.5	4.5	4.0	3.0	2.0	1.0	0.8
HPLC / %	1400 ℃× 12 h	1350 ℃×12 h		1300 ℃× 12 h	1250 ℃× 12 h	1200 ℃× 12 h	1150 ℃× 12 h
	Xmin~Xmax: -2 ~ 1						
λ [W/m·k] (350±25℃)	≤0.65	≤0.55	≤0.50	≤0.40	≤0.35	≤0.25	≤0.23

Nano Insulation Board

Description:

We mix nano-scale silica materials with some additives and use dry molding technology to make a micro-porous structure of high-efficiency thermal insulation board. It has a lower thermal conductivity than still air, excellent thermal insulation performance in high temperature environment, and obvious energy saving effect.



Technical Data:

Items		Grades			
		NIB-400	NIB-550	NIB-950	NIB-1150
Color		Off-white	Grey	Off-white	Off-white
Size(mm)		250*200 / 320*200	250*200 / 200*200	1000*600, etc.	600*200, etc.
Thick(mm)		25~60	25~100	5~50	5~20
Density(kg/m^3)		400±5%	550±5%	280±5%	320~360
Coating form		Heat shrink wrap	Heat shrink wrap	Heat shrink wrap, Al-foil wrap, Fire cloth wrap	Al-foil wrap
Work Temp(℃)		≤1000	≤1100	≤1000	≤1050
CCS(MPa)/Press10%		≥0.5	≥0.5	≥0.35	≥0.5
HTLSR/%	800℃×4h	≤1.5	≤1.2	≤2.0	-
	1050℃×24h	-	-	-	≤3.5
λ/ [W/(m ▪ K)]	200℃	-	-	0.02	-
	400℃	-	-	0.023	-
	600℃	0.031	0.049	0.027	-
	800℃	0.042	0.055	0.032	0.037
	950℃	-	-	-	0.042
	1000℃	0.052	0.068	-	-
	1050℃	-	-	-	0.045