

**RAW MATERIALS >>**

**Dead Burnt Magnesite**



Dead Burnt Magnesite

**Medium-grade magnesite**



Medium-grade magnesite

Main applications: to produce normal MgO bricks, MgO-Al bricks, gunning mass and hot repair materials for converters and furnaces (to produce medium-grade MgO bricks, MgO-Al spinel bricks, medium-grade MgO-chrome bricks as well as gunning mass for converters and furnaces, large surface repair materials for converter, gunning mass and dry mix for tundish)

Physical and chemical indices

Item	Dead Burnt Magnesite (Medium-grade magnesite)					
	MS-95	MS-94	MS-92	MS-90	MS-88	MS-87
Brand	MS-95	MS-94	MS-92	MS-90	MS-88	MS-87
MgO% $\geq$	95.20	94.10	92.00	90.00	88.00	87.00
SiO <sub>2</sub> % $\leq$	1.80	2.00	3.50	4.50	4.80	5.00
CaO% $\geq$	1.10	1.50	1.60	1.80	2.50	3.00
LOI $\leq$	0.30	0.30	0.30	0.30	0.50	0.50
B.D(g/cm <sup>3</sup> ) $\geq$	3.20	3.20	3.18	3.18	3.15	3.10
Size(mm)	0-30	0-60	(all sizes)			

**RAW MATERIALS >>**

**High Purity Magnesite**

Main applications: to produce high purity magnesia bricks, direct bonded MgO-Chrome bricks, gunning mass for converters and furnaces, large surface repair materials for converter, gunning mass for tundish.

Physical and chemical indices



Brand	MgO% $\geq$	SiO <sub>2</sub> % $\leq$	CaO% $\geq$	Fe <sub>2</sub> O <sub>3</sub> % $\leq$	LOI% $\leq$	B.D(g/cm <sup>3</sup> ) $\geq$	Size(mm)
MS - 98	97.70	0.50	1.00	0.50	0.30	3.30	0 - 30
MS - 97.5	97.50	0.50	1.10	0.60	0.30	3.30	
MS - 97	97.00	0.70	1.20	0.80	0.30	3.25	
MS - 96	96.30	1.00	1.40	1.00	0.30	3.25	

**Fused Magnesite**

Main applications: to produce MgO-C bricks and MgO-Al-C bricks for converters, furnaces and ladles as well as gunning mass and hot repair materials.

Physical and chemical indices



Brand	MgO% $\geq$	SiO <sub>2</sub> % $\leq$	CaO% $\geq$	Fe <sub>2</sub> O <sub>3</sub> % $\leq$	LOI% $\leq$	B.D(g/cm <sup>3</sup> ) $\geq$	Size(mm)
MS - 98	98.00	0.40	0.90	0.50	0.20	3.50	0 - 30
MS - 97.5	97.50	0.50	1.00	0.60	0.30	3.50	
MS - 97	97.00	0.70	1.40	0.70	0.30	3.50	0 - 120
MS - 96	96.00	0.90	1.70	0.90	0.40	3.40	

## RAW MATERIALS >>

### Caustic Calcined Magnesite Ball

Main applications: to protect the converter from splashes in order to improve the life of converter lining.

Physical and chemical indices



Brand	MgO% $\geq$	SiO <sub>2</sub> % $\leq$	CaO% $\leq$	Fe <sub>2</sub> O <sub>3</sub> % $\leq$	B.D(g/cm <sup>3</sup> ) $\geq$	MPa $\geq$ Cold Crushing Strength	Size(mm)
LBM - 70	70.00	2.50	3.00	0.80	2.40	25.00	0 - 30
LBM - 65	65.00	3.00	3.00	0.80	2.40	25.00	
LBM - 60	60.00	4.00	3.00	1.00	2.40	25.00	

### Large Crystal Fused Magnesite

Main applications: to produce medium and high grades of MgO-C bricks, unshaped refractories and insulating materials for electronics industry.

Physical and chemical indices

Brand	MgO% $\geq$	SiO <sub>2</sub> % $\leq$	CaO% $\leq$	Fe <sub>2</sub> O <sub>3</sub> % $\leq$	Al <sub>2</sub> O <sub>3</sub> % $\leq$	LOI% $\leq$	B.D(g/cm <sup>3</sup> ) $\geq$	Size(mm)
LCFM - 99	99.02	0.19	0.40	0.22	0.05	0.12	3.50	0 - 30
LCFM - 98.5	98.51	0.30	0.71	0.32	0.07	0.09	3.50	
LCFM - 98	98.10	0.40	0.90	0.40	0.10	0.10	3.50	
LCFM - 97.8	97.80	0.48	1.02	0.50	0.12	0.08	3.50	0 - 60
LCFM - 97.5	97.51	0.50	1.20	0.56	0.13	0.10	3.50	0 - 60
LCFM - 97	97.15	0.60	1.29	0.61	0.20	0.15	3.50	

### Large Crystal Fused Magnesite



## RAW MATERIALS >>

### Caustic Calcined Magnesite Powder

Main applications: Soil improvement, additive agent for construction, synthetic materials for refractories, ceramics industry(to produce medium and high grade magnesite, FM and synthetic materials).



Physical and chemical indices

Brand	MgO% ≥	SiO <sub>2</sub> %	CaO%	LOI%
95	95.00	1.00	2.00	3.00
90	90.00	4.00	4.00	6.00
85	85.00	6.00	8.00	8.00
80	80.00	8.00	10.00	10.00

### Magnesite

Magnesite is crystalized in the shape of lumps and most are in white color. The specific gravity is about 2.9-3.1 and hardness is about 6-8. It is the ideal raw material for producing CCM, DMB and high-grade FM.



Physical and chemical indices

Brand	MgO% ≥	SiO <sub>2</sub> % ≤	CaO% ≤	Size(mm)
HYLM - 47	47.00	0.60	0.60	All sizes
HYLM - 46	46.00	1.20	1.50	
HYLM - 15	45.00	1.50	1.50	

## UNSHAPED REFRACTORY >>

### Gunning Mass For Converters

Brand	MgO% ≥	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> % ≤	CaO% ≤	B.D(g/cm <sup>3</sup> ) ≥	(1500°C×2h) MPa ≥ Cold Crushing Strength
ZMPL - 1	88	2-4	1.0	4	2.5	12
ZMPL - 2	87	2-4	1.5	5	2.5	12
ZMPL - 3	85	2-4	2.0	6	2.4	10

### Materials For Fast Repair Of Converter Tapping Hole

Brand	MgO% ≥	SiO <sub>2</sub> % ≤	Fe <sub>2</sub> O <sub>3</sub> % ≤	CaO% ≤	C%	B.D(g/cm <sup>3</sup> ) ≥
ZLKB	80	2	1	2	4-6	2.5

### Large Surface Repair Materials For Converters

Brand	MgO% ≥	SiO <sub>2</sub> % ≤	Fe <sub>2</sub> O <sub>3</sub> % ≤	CaO% ≤	C%	B.D(g/cm <sup>3</sup> ) ≥
ZDML - 1	76	2.5	2.0	3.0	4-6	2.4
ZDML - 2	80	2.5	1.8	3.0	4-6	2.5
ZDML - 3	82	2.5	1.5	3.0	4-6	2.6

### Gunning Mass For Converters

Brand	MgO%	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> % ≤	CaO%	B.D(g/cm <sup>3</sup> ) ≥	(1500°C×2h) MPa ≥ Cold Crushing Strength	(1500°C×2h) % ≤ Cold Crushing Strength
DMPL - 1	≥ 90	4-6	1.5	≤2	2.5	12	1.5
DMPL - 2	87-89	2-4	1.5	4-6	2.5	10	1.5

### Dry Ramming Mass For Electric Furnace Bottom

Brand	MgO%	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> % ≤	CaO%	B.D(g/cm <sup>3</sup> ) ≥	(1500°C×2h) MPa ≥ Cold Crushing Strength	(1500°C×2h) % ≤ Cold Crushing Strength
DMPL - 1	72-76	18-20	3-4	3.0	2.5	1.5	12
DMPL - 2	65-68	25-30	3-4	3.0	2.5	1.5	12

### Dry Mass For Tundish

牌号 Brand	MgO% ≥	SiO <sub>2</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	CaO% ≤	(1500°C×2h) % ≤ Volume Change Rate after Burning
ZBGL - 1	82	≤4	≤1.5	2	-4
ZBGL - 2	65	18-22	3-5	2	-5

## Carbon Containing Refractory >>

### MgO-C brick

MgO-C bricks are made through thermal mixing, high-temperature forming and hot treatment of fused magnesite and graphite, as the main raw materials, bonded by phenolic resin by adding a certain quantity of antioxidants.

In order to improve the oxidation resistance and temperature of the bricks, some antioxidants, like metals, carbide, etc. are normally added. Carbon has very good thermal conductivity and low thermal expansion coefficient. The wetting angle between carbon and molten slag is big which can effectively prevent slag from penetration. So thermal and structure spalling may not happen easily. The bricks are widely used for metallurgical industry furnaces, like steel-making converters, electric furnaces, ladle refining furnaces, etc.

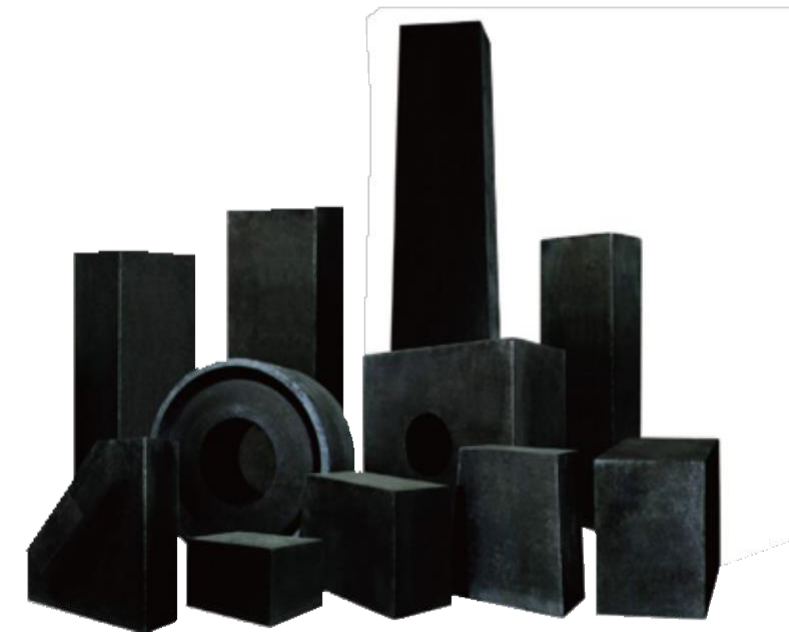


#### Physical and chemical indices

Items	Magnesia-Carbon Bricks										
	MgO-C Bricks for converter				MgO-C Bricks for electric furnace				MgO-C Bricks for ladle		
Applications											
Brand	ZLMT-16	ZLMT-14	ZLMT-12	ZLMT-10	ZLMT-14	ZLMT-12	ZLMT-10	ZLMT-8	GBMT-14	GBMT-12	GBMT-8
MgO% ≥	76	77	80	80	76	76	78	80	76	78	82
F/C% ≥	16	14	12	10	14	12	10	8	14	12	8
B.D(g/cm³) ≤	2.93-3.02	2.95-3.03	2.96-3.03	2.98-3.05	2.93-3.02	2.95-3.03	2.96-3.03	2.98-3.05	2.93-3.02	2.95-3.03	2.96-3.03
Apparent Porosity % ≥	3	4	4	5	4	5	6	6	4	5	6
Cold Crushing Strength MPa ≥	40	40	35	35	40	35	30	30	40	35	30
Hot Modulus of Rupture MPa	10	10	6	5	10	8	6	5	12	10	6

## Carbon Containing Refractory >>

### Al-MgO-C Bricks For Ladles



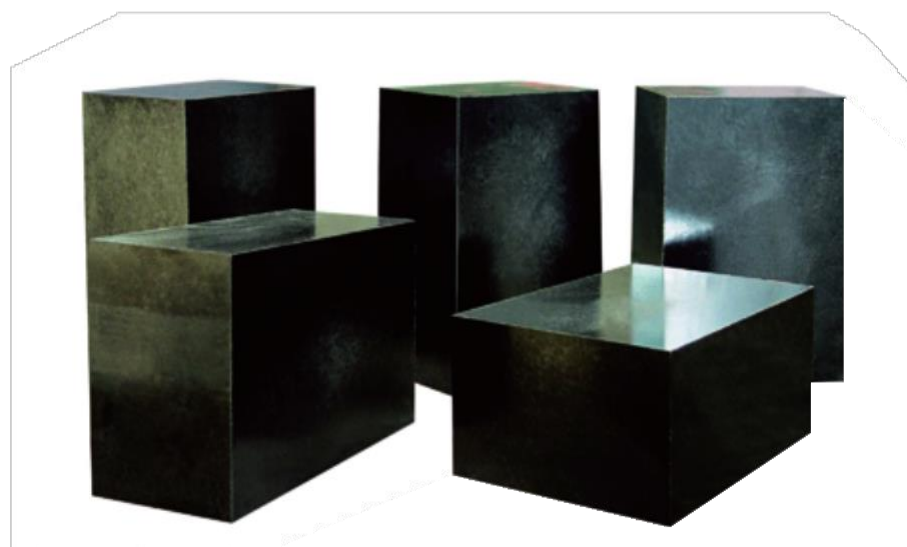
Al-MgO-C bricks, made of Al<sub>2</sub>O<sub>3</sub> (corundum, high quality bauxite clinker, homogenization alumina, andalusite, etc.) and graphite, have high resistance to molten steel erosion, low thermal conductivity and good heat preservation performance. It has appropriate residual expansion and good masonry integrity. The bricks are widely used for sidewall and bottom of ladles.

#### Physical and chemical indices

牌号 Brand	Al <sub>2</sub> O <sub>3</sub> % ≥	MgO% ≥	F/C% ≥	B.D(g/cm³)	% ≤ Apparent Porosity	MPa ≥ Cold Crushing Strength
GBLMT - 8	70	10	8	3.0-3.15	6	50
GBLMT - 6	70	12	6	3.0-3.10	6	50

## Carbon Containing Refractory >>

### MgO-Al-C brick



MgO, Al<sub>2</sub>O<sub>3</sub> and graphite are the main raw materials for MgO- Al-C bricks which have low apparent porosity, high strength, high wear-resisting strength and high erosion resistibility. The bricks also have excellent antioxidant resistance, slag resistance, erosion resistance and good thermal shock resistance as well as good spalling resistance. It has been widely used for transition area between slag line and side wall of ladles as well as ladle's sidewall.

#### Physical and chemical indices

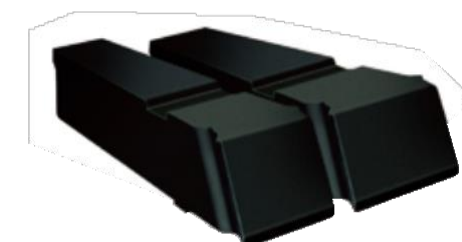
Brand	MgO% $\geq$	Al <sub>2</sub> O <sub>3</sub> % $\geq$	C% $\geq$	B.D(g/cm <sup>3</sup> ) $\geq$	% Apparent Porosity	MPa $\geq$ Cold Crushing Strength
HMLT - 10	63	10	12	2.90	6	35
HMLT - 15	58	15	12	2.90	6	35
HMLT - 25	53	25	10	2.90	6	35

## Carbon Containing Refractory >>

### MgO-CaO-C Bricks

It is made of high quality magnesia, magnesium dolomite sand, dolomite sand and graphite along with binders. The bricks have been widely used for sidewall of ladles producing cord steel, lining of ladles producing stainless steel, bottom of GOR converter producing stainless steel, lining of ladles producing liquid steel from deilication or dephosphorization converters. It has also been used for sidewall and bottom of VOD.

MgO-CaO-C Bricks



Al-SiC-C Bricks

### Al-SiC-C Bricks

The bricks are unfired products made of corundum, bauxite, graphite and SiC as the main raw materials. Appropriate quantity of antioxidants is added to improve the oxidation resistance of the materials. The bricks have been widely used for Torpedo car and hot metal ladle which are for hot metal pretreatment. It has higher resistance to erosion, oxidation and spalling.

#### Physical and chemical indices

Items	Magnesia- Dolomite-Carbon Brick			Alumina-Silicon Carbide-Carbon Brick	
	HMGT-4	HMGT-6	HMGT-9	HASC-5	HASC-7
Brand $\geq$					
MgO% $\geq$	65	65	55	—	—
CaO% $\geq$	15	15	20	—	—
SiO <sub>2</sub> % $\geq$	—	—	—	6	7
C% $\geq$	4	6	9	10	10
Al <sub>2</sub> O <sub>3</sub> %	—	—	—	65	75
B.D(g/cm <sup>3</sup> ) $\geq$	2.90	2.85	2.85	2.85	3.00
% Apparent Porosity	6	5	4	8	8
MPa $\geq$ Cold Crushing Strength	35	35	35	40	40

## Nozzle Series >>

### Al-C Nozzle



The product is unfired by using high purity alumina and carbon as raw materials with phenolic resin as binder. It has good erosion resistance and thermal shock resistance.

#### Physical and chemical indices

Items	Alumina-Carbon Nozzles			
Brand	HYLT-90	HYLT-85	HYLT-75	HYLT-70
Al <sub>2</sub> O <sub>3</sub> % ≥	90	85	75	70
F.C.% ≥	3	3	3	3
B.D(g/cm <sup>3</sup> ) ≥	3.10	3.05	2.80	2.70
% Apparent Porosity	8	8	8	8
MPa Cold Crushing Strength	85	80	90	90

## Burnt Refractory >>

### Magnesia-Dolomite Brick

It is made of high quality synthetic calcium magnesium with anhydrous binder burnt at high temperature with vacuum pressurizing and impregnation of asphalt or paraffin. The ratio between CaO and MgO needs to be designed based on the operational environment. The bricks have good high temperature performance and excellent slag resistance. It can also clean the liquid steel, like dephosphorization, desulfurization and removal of nonmetallic impurities. The bricks are widely used in smelting plants for smelting stainless steel, like AOD, VOD, GOR, CLU, etc.



#### Physical and chemical indices

Items	Magnesia-Dolomite Bricks			
Brand	HYMG-20	HYMG-30	HYMG-40	
CaO% ≥	20.0	30.0	40.0	
∑ (F+A+S) % ≤	3	3	3	
% Apparent Porosity	Wax Impregnation	8	8	8
	No wax Impregnation	13	13	15
Mpa ≥ Cold Crushing Strength	55	55	55	
°C Refractoriness Under of 0.2MPa	1700	1700	1700	

## Burnt Refractory >>

### Magnesia Bricks

The bricks are made of high quality magnesite as raw materials burnt at high temperature after crushing, batching, mixing and shaping. The higher the sintering temperature, the higher the ratio of direct combination of periclase crystal and the better the performance of erosion resistance and high temperature resistance.

With high refractoriness, good alkali resistance and high starting temperature of refractoriness under load, magnesia bricks are mainly used for permanent lining of steel-making, work lining of mixer, ferroalloy furnace and smelting furnace, preheating and cooking zones of lime kiln and regenerator of glass furnace.



Magnesia Bricks



MgO-ZrO<sub>2</sub> Bricks

### MgO-ZrO<sub>2</sub> Bricks

High quality magnesite and ZrO<sub>2</sub> are the main raw materials for MgO-ZrO<sub>2</sub> bricks. Its high temperature and thermal shock resistance are better than the magnesia bricks which are produced by fused magnesite rebonding. This type of bricks is widely used in regenerator of glass furnaces.

#### Physical and chemical indices

Items	Magnesia Bricks							镁锆砖 MgO - ZrO <sub>2</sub> Bricks	
	HYMZ-91	HYMZ-92	HYMZ-95	HYMZ-97	HDMZ-96	HDMZ-97	HDMZ-98	HYMZ-10	HYMZ-12
Brand									
MgO% ≥	90.5	92.0	94.0	96.3	95.3	96.3	96.8	75.0	72.0
	2.5	2.5	2.0	—	—	—	—	—	—
SiO <sub>2</sub> % ≤	—	—	2.5	1.0	1.8	1.5	1.2	8.0	10.0
ZrO <sub>2</sub> % ≥	—	—	—	—	—	—	—	12	12
%≤ Apparent Porosity	18	18	18	17	17	17	17	16	17
MPa Cold Crushing Strength	55	55	60	60	60	60	60	55	50
°C Refractoriness Under of 0.2MPa	1500	1520	1600	1700	1700	1700	1700	1660	1600

## Burnt Refractory >>

### MgO-Al Bricks

It is produced by high purity magnesite along with high quality alumina. The MgO-Al spinel is formed in the brick which makes the bricks have good high temperature performance and high thermal shock resistance. The bricks are mainly used in melting furnaces for non-ferrous metallurgy as well as regenerator of glass furnaces.



MgO-Al Bricks



MgO-Al Spinel

### MgO-Al Spinel

High purity magnesite and good quality MgO-Al spinel sand are the main raw materials for MgO-Al Spinel bricks and the principle crystalline phase of the bricks is periclase and MgO-Al spinel. The bricks have good high temperature performance and higher thermal shock resistance, which are widely used in transition area and sintering area of cement kiln, regenerator of glass furnaces and burning area of lime kiln.

#### Physical and chemical indices

	MgO-Al Bricks	Magnesia Alumina Spinel Brick		
	HML-80	HFJ-5	HFJ-11	HML-80
MgO% ≥	80.0	85.0	82.5	83.0
Al <sub>2</sub> O <sub>3</sub> % ≥	5~10	5.0	11.0	9.0
B.D(g/cm <sup>3</sup> ) ≥	2.85	2.90	2.85	2.88
%≤ Apparent Porosity	19	19	19	19
MPa Cold Crushing Strength	35	40	35	40
°C Refractoriness Under of 0.2MPa	1600	1700	1700	1680
Thermal Shock Resistance 1100°C Water	3~6	10	8	7

## Burnt Refractory >>



### Silicate Bonded MgO-Chrome Bricks

It is made of burnt magnesite and chromite. The bricks have good high temperature performance and excellent thermal shock resistance which are widely used in industrial furnaces for ferrous and non ferrous metallurgy.

### Direct Bonded MgO-Chrome Bricks

It is made of high purity magnesite and high quality chrome ore which are shaped at high pressure and burnt at high temperature. The bricks have good high temperature performance and strong resistance for metallurgical slag erosion. It has been widely used in the main areas of industrial furnaces for ferrous and non ferrous metallurgy.

### Semi-Bonded MgO-Chrome Bricks and Fused Magnesia Rebonded MgO-Chrome Bricks

It is made of fused Magnesite and fused MgO-Chrome sand, which are burnt at ultra high temperature after shaping at high pressure. Direct bonding rate is high with good particle combination, good volume stability at high temperature and excellent high temperature strength. It has been widely used in RH, AOD, VOD, smelting furnaces, melting furnaces and refining furnaces.

#### Physical and chemical indices

Items	Silicate Bonded MgO-Chrome Bricks		Direct Bonded MgO-Chrome Bricks			Semi-Bonded MgO-Chrome Bricks			Fused Magnesia Rebonded MgO-Chrome Bricks			
	HMC-8	HMC-12	HZMC-8	HZMC-12	HZMC-16	HBMC-16	HBMC-18	HBMC-20	HDMC-16	HDMC-18	HDMC-20	HDMC-24
Brand	HMC-8	HMC-12	HZMC-8	HZMC-12	HZMC-16	HBMC-16	HBMC-18	HBMC-20	HDMC-16	HDMC-18	HDMC-20	HDMC-24
MgO% $\geq$	65.0	60.0	74.0	66.0	60.0	60.0	58.0	55.0	62.0	60.0	58.0	52.0
Cr <sub>2</sub> O <sub>3</sub> % $\geq$	8	12	8	12	16	16	18	20	16	18	20	24
SiO <sub>2</sub> $\geq$	—	—	2.0	2.0	2.0	1.5	1.5	1.5	1.2	1.2	1.2	1.2
% $\leq$ Apparent Porosity	20	20	18	18	18	17	17	17	16	16	16	16
Mpa $\geq$ Cold Crushing Strength	35	35	40	35	35	40	40	40	45	45	45	45
$^{\circ}$ C Refractoriness Under of 0.2MPa	1600	1600	1660	1660	1660	1750	1750	1750	1750	1750	1750	1750