ZHONGMEI

辽宁中镁集团
LIAONING ZHONGMEI GROUP

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手机网站

公众号

辽宁中镁集团
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集团简介

辽宁中镁集团起始于1989年，其前身为辽宁富城特种耐火材料有限公司，最初的产品主要是镁碳砖和不定形耐火材料；在发展过程中，于2007年投资成立营口关山耐火材料有限公司，开始生产镁质耐火原料；于2009年投资成立辽宁中镁高温材料有限公司，配备了高温隧道窑，开始生产镁质高温烧成制品；2013年，将原辽宁富城特种耐火材料有限公司改制更名为辽宁中镁控股股份有限公司（证券简称：中镁控股；证券代码：831621），同时组建了辽宁中镁集团。

经过几十年的发展壮大，中镁集团现已发展成为集耐火材料研发、生产、销售、整体承包及施工服务于一体的大型企业集团，现有员工1300余人，占地面积48万平方米，集团旗下拥有中镁控股、中镁高温、中镁新材料、关山耐火等7家全资子公司。

集团在发展过程中，建有国内一流的镁质耐火原料、不定形耐火材料、不烧含碳制品及高温烧成制品生产线。全公司拥有3600t液压机1台、2500t液压机11台；最高烧成温度达1850℃的隧道窑6条。实现了“矿石优选-原料煅烧-产品深加工”的全产业链定位。

中镁集团生产的各种镁质耐火材料制品，涵盖镁钙系列、镁铬系列、镁铝系列、镁铁系列、镁碳系列、镁硅系列、镁锆系列、镁砖系列等八大系列产品，公司年产各种定型及不定形耐火材料30万吨以上，产品深得国内钢铁、有色、水泥、玻璃等行业青睐，并远销到欧洲、美洲、东南亚等二十多个国家和地区。

集团建有省级企业技术中心，拥有完善的耐火材料检验设备及先进的分析仪器。与辽宁科技大学、沈阳化工大学等高校广泛开展产、学、研合作，现已拥有发明专利和实用新型专利60余项。

集团已通过了ISO9001和ISO14001管理体系认证，取得了安全标准化管理证书，全面推行6s管理模式，先后荣获“中国耐火材料行业 AAA级信用企业”、“辽宁省诚信示范企业”、“辽宁省名牌产品”、“耐火材料一级优秀承包服务商”等一系列荣誉和称号。

子公司中镁控股和中镁高温，通过了辽宁省“专精特新”中小企业认定；中镁高温通过了国家级“专精特新”小巨人企业认定。集团公司在中镁高温投资建设的“5G+工业互联网”智能化升级项目，通过了辽宁省互联网创新验收，并获得发展专项资金的奖励。

面对未来，中镁集团将始终秉承“质量第一、用户至上”的企业宗旨，带着诚信与责任，不断地为客户提供高性价比的镁质系列耐火材料，确保客户提高生产效率，成为客户值得信赖和满意的战略合作伙伴。中镁人将以“铸百年企业为己任、创国际品牌为愿景”，为把中镁集团做优、做强、做大而努力奋斗。

辽宁中镁集团
LIAONING ZHONGMEI GROUP

480,000 平
公司占地面积

1,300 人
员工人数

7 家
下设分公司



Group Profile

Liaoning Zhongmei Group was founded in 1989, formerly known as Liaoning Fucheng Special Refractory Materials Co., Ltd. Its initial products were mainly magnesium carbon bricks and amorphous refractory materials; In the process of development, in 2007, Yingkou Guanshan Refractory Materials Co., Ltd. was invested and established to start producing magnesium refractory raw materials; In 2009, Liaoning Zhongmei High Temperature Materials Co., Ltd. was invested and established, equipped with a high-temperature tunnel kiln, and began producing magnesium high-temperature sintered products; In 2013, the original Liaoning Fucheng Special Refractory Materials Co., Ltd. was restructured and renamed as Liaoning Zhongmei Holdings Co., Ltd. (securities abbreviation: Zhongmei Holdings; securities code: 831621), and Liaoning Zhongmei Group was also established.

After decades of development and growth, Zhongmei Group has now developed into a large enterprise group that integrates research and development, production, sales, overall contracting, and construction services for refractory materials. Currently, it has more than 1300 employees and covers an area of 480000 square meters, the group has seven wholly-owned subsidiaries, including Zhongmei Holdings, Zhongmei High Temperature, Zhongmei New Materials, and Guanshan Refractory.

In the process of development, the group has established a domestic first-class production line for magnesia refractory raw materials, unshaped refractory materials, unburned carbon products, and high-temperature sintered products. The entire company has 1 set of 3600t hydraulic press and 11 sets of 2500t hydraulic presses; Six tunnel kilns with a maximum firing temperature of 1850 ℃. We have achieved the full industry chain positioning of "ore optimization, raw material calcination, and product deep processing".

The various magnesium refractory products produced by Zhongmei Group covers eight major series of products, including dolomite series, magnesium chromium series, magnesium aluminum series, magnesium iron series, magnesium carbon series, magnesium silicon series, magnesium zirconium series, and magnesium brick series. The company produces over 300000 tons of fixed and amorphous refractory materials annually, and the products are highly favored by domestic industries such as steel, non-ferrous metals, cement, and glass, and are exported to more than 20 countries including Europe, America and Southeast Asia.


库房 Storeroom


会议室 Conference room


大厅 Lobby

The group has a provincial-level enterprise technology center, equipped with complete refractory material inspection equipment and advanced analytical instruments. We have extensive cooperation in industry, acedemy, and research with universities such as Liaoning University of Science and Technology and Shenyang University of Chemical Technology, and now have over 60 invention and utility model patents.

The group has passed ISO9001 and ISO14001 management system certifications, obtained safety standardization management certificates, fully implemented the 6s management model, and has been awarded a series of honors and titles such as “China Refractory Industry AAA Credit Enterprise”, “Liaoning Province Integrity, Demonstration Enterprise”, “Liaoning Province Famous Brand Product”, and “Refractory Materials First Class Excelent Contracting Service Provider”.

The subsidiaries of Zhongmei Holdings and Zhongmei High Temperature have been recognized as "specialized, refined, and innovative" small and medium-sized enterprises in Liaoning Province; Zhongmei High Temperature has been recognized as a national level "specialized, refined, and innovative" small giant enterprise. The "5G+Industrial Internet" intelligent upgrade project invested and constructed by the group company in the high-temperature construction of Zhongmei has passed the Liaoning Province Internet innovation acceptance and received rewards from special development funds.

In the future, Zhongmei Group will always adhere to the corporate philosophy of "quality first, user first", with integrity and responsibility, continuously provide customers with cost-effective magnesium series refractory materials, ensure that customers improve production efficiency, and become a trustworthy and satisfactory strategic partner for customers. The people of Zhongmei will take "establishing a century old enterprise as their own responsibility and creating an international brand as their vision", and strive to make Zhongmei Group better, stronger, and larger.



辽宁中镁控股股份有限公司

Liaoning Zhongmei Holding Co.,Ltd.

公司位于营口南楼经济开发区官马山工业园，国家级高新技术企业，辽宁省“专精特新”中小企业。公司年产各种不烧含碳制品6万吨、年产各种不定形耐火材料4万吨。拥有全自动配料系统2条；装备3600t液压机1台、2500t液压机2台、摩擦压力机10台；拥有63米长，集焙烧、冷却、出窑全程可实现自动化控制的、专门生产镁钙碳砖的热处理窑1座。

公司定型产品主要有镁碳砖、导电型镁碳砖、铝镁碳砖、镁铝碳砖、镁钙碳砖等不烧含碳系列产品；不定形产品主要有镁质喷补料、镁质捣打料、镁质烧补料、镁质火泥等镁质系列不定形耐火材料。产品广泛应用于转炉、电炉、钢包精炼炉、GOR炉、铁合金矿热电炉等钢铁冶金炉的高温工作衬。

The company is located in Guanmashan Industrial Park, Yingkou Nanlou Economic Development Zone. It is a national high-tech enterprise and a "specialized and special new" small and medium-sized enterprise in Liaoning Province. The company has an annual output of 60,000 tons of non-burned carbon-containing products and 40,000 tons of unshaped refractory materials. With fully automatic batching system 2; 1 set of 3600t hydraulic press, 2 sets of 2500t hydraulic press and 10 sets of friction press; There is a 63-meter-long heat treatment kiln specializing in the production of magnesia-calcium-carbon bricks, which can be automatically controlled throughout the roasting, cooling and kiln discharge process.

The company's shaped products mainly include magnesia carbon brick, conductive magnesia carbon brick, alumia carbon brick, magnesia aluminum carbon brick, magnesia calcium carbon brick and other non-burning carbon-containing products; unshaped products are mainly magnesium spray supplement, magnesium ramming material, magnesium burning supplement, magnesium fire mud and other magnesium series of unshaped refractory. Products are widely used in converter, electric furnace, ladle refining furnace, GOR furnace, ferroalloy mineral thermal furnace and other iron and steel metallurgy furnace high temperature lining.











辽宁中镁高温材料有限公司

Liaoning Zhongmei High Temperature Material Co.,Ltd.

公司位于营口南楼经济开发区官马山工业园，国家级高新技术企业，国家级“专精特新”小巨人企业。公司建有三条镁质烧成制品生产线：拥有全自动微机配料系统6条，2500t液压机9台，电动螺旋压力机11台，最高烧成温度达1850℃的隧道窑6条。公司年生产能力达到18万吨以上，产品涵盖镁钙系列、镁铬系列、镁铝系列、镁铁系列、镁硅系列、镁锆系列、镁砖系列等七大系列镁质烧成制品。产品广泛应用于钢铁，有色，水泥，玻璃等行业，并远销到欧洲、美洲、东南亚等二十多个国家和地区。

The company is located in Guanmashan Industrial Park, Yingkou Nanlou Economic Development Zone, a national high-tech enterprise, a national "specialized and special new" small giant enterprise. The company has three production lines of magnesium sintering products: 6 automatic microcomputer batching systems, 9 sets of 2500t hydraulic presses, 11 sets of electric screw presses, and 6 tunnel kilns with a maximum firing temperature of 1850℃. The annual production capacity of the company has reached more than 180,000 tons, and the products cover seven series of magnesia fired products such as dolomite series, magnesia chromium series, magnesia aluminum series, magnesia iron series, magnesia silicon series, magnesia zirconia series and magnesia brick series. Products are widely used in steel, nonferrous, cement, glass and other industries, and exported to Europe, America, Southeast Asia and other more than 20 countries and regions.











营口关山耐火材料有限公司

Yingkou Guanshan Refractory Co., Ltd.



公司位于营口南楼经济开发区官马山工业园，为集团公司原料生产基地。主要装备有66KV变电站1座、2400KVA电熔镁炉12座、轻烧反射窑8座、高温竖窑6座、回转窑1条。主要生产镁质耐火原料，产品包括电熔镁砂、电熔大结晶镁砂、电熔二钙镁砂、电熔镁铬砂、电熔镁钙砂、烧结镁钙砂、烧结高铁高钙砂等镁质耐火原料。

The company is located in Guanmashan Industrial Park, Yingkou Nanlou Economic Development Zone, which is the raw material production base of the group company. The main equipment is 1 66KV substation, 12 2400KVA electromelting magnesia furnaces, 8 light burning reflection kilns, 6 high temperature shaft kilns and 1 rotary kiln. Mainly produces magnesia refractory raw materials, including fused magnesia, fused large crystalline magnesia, fused C/S magnesia, fused magnesia chrome sand, fused magnesia calcium sand, sintered magnesia calcium sand, sintered high iron high calcium sand and other magnesia refractory raw materials.







集团研发中心

Research & Development center

中镁集团研发中心于2010年成立，2015年被认定为辽宁省省级企业技术中心，设有专家（博士）工作站和研究生联合培养示范基地。

中镁集团把提高自主创新能力作为企业的中心环节，不断加大研发投入，购置了国内外先进的耐火材料科技研发设备，拥有研发技术人员120余人，其中教授级高级工程师2人，高级工程师8人，硕士学位研究生10人，形成了一支多学科交叉互补、专业搭配合理的研发队伍。先后承担国家、省、市级科研项目5项，获得国家、省级奖励30余项，参与制订国家行业标准8项，获得国家授权专利65项，开发高新技术产品12个，获得国家经费支持3700多万元，2022年被认定为国家知识产权优势企业。

研发中心密切关注国内外耐材市场的潜在需求以及国内外耐材行业的发展趋势，与东北大学、辽宁科技大学、沈阳化工大学、中国科学院金属研究所等科研单位广泛开展产、学、研合作，不断开发出高科技、高质量、高效益的市场急需产品。

The R&D center of Zhongmei Group was established in 2010, and was recognized as the provincial enterprise Technology Center of Liaoning Province in 2015, with expert (doctor) workstation and demonstration base for joint training of postgraduates.

Zhongmei Group takes improving the ability of independent innovation as the central link of the enterprise, constantly increases the investment in research and development, purchases advanced refractory technology research and development equipment at home and abroad, and has more than 120 R & D technicians, including 2 professor-level senior engineers, 8 senior engineers, and 10 master's degree graduates. Formed a multi-disciplinary cross-complementary, professional and reasonable R & D team. It has undertaken 5 national, provincial and municipal scientific research projects, won more than 30 national and provincial awards, participated in the formulation of 8 national industry standards, obtained 65 national authorized patents, developed 12 high-tech products, obtained more than 37 million yuan of state funding support, and was recognized as a national intellectual property advantage enterprise in 2022.

The R & D center pays close attention to the potential demand of the domestic and foreign refractory materials market and the development trend of the domestic and foreign refractory materials industry, and carries out extensive cooperation in production, education and research with scientific research units such as Northeastern University, Liaoning University of Science and Technology, Shenyang University of Chemical Technology, and the Institute of Metal Research of the Chinese Academy of Sciences, and constantly develops high-tech, high-quality and cost-effective products that are urgently needed in the market.













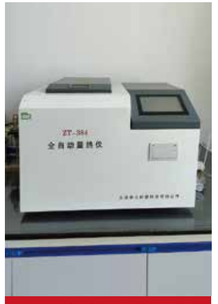
电子扫描显微镜
Electron scanning microscope



X射线衍射仪
X-ray diffractometer



X荧光分析仪
X-ray fluorescence analyzer



自动热量仪
Automatic calorimeter



碳硫分析仪
Carbon and sulfur analyzer



全自动高温抗折试验机
Automatic H.M.O.R testing machine



抗热震性试验机
Thermal shock resistance testing machine



荷重软化蠕变仪
R.U.L creep tester



高温蠕变仪
High temperature creep tester



常温耐压强度检测仪
C.C.S inspector

企业资质

Enterprise Qualification

中镁控股体系认证

Zhongmei Holding system certification













中镁高温体系认证

Zhongmei high temperature system certification













企业荣誉

Enterprise Honor

















































镁砖
MgO brick





指标 Specification / 牌号 Brand	镁砖 MgO brick								
	ZMZ-98A	ZMZ-98B	ZMZ-97A	ZMZ-97B	ZMZ-96	ZMZ-95A	ZMZ-95B	ZMZ-92	ZMZ-91
MgO % ≥	97.5	97.3	97.0	96.5	96.0	95.0	94.5	92.0	91.0
SiO_2 % ≤	0.6	0.6	0.8	1.0	1.5	2.0	2.0	3.5	5.0
CaO % ≤	1.0	1.1	1.3	1.5	1.5	2.0	2.5	2.5	3.0
显气孔率 % ≤ Apparent Porosity	16	16	17	17	17	18	18	18	18
体积密度 g/cm³ ≥ Bulk density	3.02	3.00	3.00	2.98	2.98	2.95	2.95	2.93	2.90
常温耐压强度 MPa ≥ Cold Crushing Strength	65	65	65	60	60	60	55	55	55
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1700		1700		1670	1650		1600	1560

镁橄榄石砖
MgO-SiO_2 brick



指标 Specification / 牌号 Brand	镁橄榄石砖 Magnesia olivine brick	
	ZMGL-60	ZMGL-80
MgO % ≥	68	80
SiO_2 %	≥20	≤11
显气孔率 % ≤ Apparent Porosity	20	18
体积密度 g/cm³ ≥ Bulk density	2.70	2.80
常温耐压强度 MPa ≥ Cold Crushing Strength	45	45
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1620	1550
热震稳定性（950℃，风冷）次≥ Thermal Shock Resistance 950℃ Air cooling	10	10

镁锆砖
MgO-ZrO_2 brick



指标 Specification / 牌号 Brand	镁锆砖 MgO-ZrO_2 brick	
	高温镁锆砖 ZMZr-A	低温镁锆砖 ZMZr-B
MgO % ≥	78	74
ZrO_2 % ≥	13.5	12.0
SiO_2 % ≤	1.5	2.0
CaO % ≤	1.0	1.5
Fe_2O_3 % ≤	0.8	1.0
显气孔率 % ≤ Apparent Porosity	13	16
体积密度 g/cm³ ≥ Bulk density	3.20	3.10
常温耐压强度 MPa ≥ Cold Crushing Strength	100	60
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1680	1580
热震稳定性（950℃，风冷）次 ≥ Thermal Shock Resistance 950℃ Air cooling	10	10

玻璃窑镁铬砖
MgO-Cr_2O_3 brick for glass kilns



指标 Specification / 牌号 Brand	玻璃窑镁铬砖 Magnesia chrome brick for glass kilns	
	ZDMC-20	ZDMC-12
MgO % ≥	60	70
Cr_2O_3 %≥	20	12
SiO_2 % ≤	1.5	2.0
CaO % ≤	1.5	—
显气孔率 % ≤ Apparent Porosity	18	18
体积密度 g/cm³ ≥ Bulk density	3.15	3.05
常温耐压强度 MPa ≥ Cold Crushing Strength	40	40
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1700	1650
热震稳定性（1100℃，水冷）次≥ Thermal Shock Resistance 1100℃ Water	5	5

镁铬砖
$MgO-Cr_2O_3$ brick






指标 Specification / 牌号 Brand	直接结合镁铬砖 Direct-bonded $MgO-Cr_2O_3$ brick											
	ZHMGe-20A	ZHMGe-20B	ZHMGe-18A	ZHMGe-18B	ZHMGe-16A	ZHMGe-16B	ZHMGe-12A	ZHMGe-12B	ZHMGe-8A	ZHMGe-8B	ZHMGe-6	ZHMGe-4
MgO % ≥	56	56	58	58	60	60	64	64	68	68	70	72
Cr_2O_3 %≥	20	20	18	18	16	16	12	12	8	8	6	4
SiO_2 % ≤	1.5	2.0	1.5	2.0	1.5	2.0	1.5	2.0	1.5	2.0	2.0	2.0
显气孔率 % ≤ Apparent Porosity	18	18	18	18	18	18	18	18	18	18	18	18
体积密度 g/cm³ ≥ Bulk density	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.10	3.10	3.10	3.10
常温耐压强度 MPa ≥ Cold Crushing Strength	40	35	40	35	40	35	40	35	40	35	35	35
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1650	1600	1650	1600	1650	1600	1600	1600	1600	1600	1600	1600

指标 Specification / 牌号 Brand	电熔再结合镁铬砖 Fusd-bonded $MgO-Cr_2O_3$ brick							
	ZDMGe-26A	ZDMGe-24A	ZDMGe-22A	ZDMGe-22B	ZDMGe-20A	ZDMGe-20B	ZDMGe-16A	ZDMGe-16B
MgO % ≥	50	52	54	54	58	58	62	62
Cr_2O_3 %≥	26	24	22	22	20	20	16	16
SiO_2 % ≤	1.2	1.2	1.2	1.5	1.2	1.5	1.2	1.5
显气孔率 % ≤ Apparent Porosity	16	16	16	16	16	16	16	16
体积密度 g/cm³ ≥ Bulk density	3.30	3.30	3.30	3.25	3.25	3.25	3.25	3.25
常温耐压强度 MPa ≥ C.C.S	45	45	45	40	45	40	45	40
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1700	1700	1700	1700	1700	1700	1700	1700

指标 Specification / 牌号 Brand	半再结合镁铬砖 Semi-bonded $MgO-Cr_2O_3$ brick							
	ZBDMGe-20A	ZBDMGe-20B	ZBDMGe-18A	ZBDMGe-18B	ZBDMGe-16A	ZBDMGe-16B	ZBDMGe-12A	ZBDMGe-12B
MgO % ≥	58	58	60	60	62	60	66	66
Cr_2O_3 %≥	20	20	18	18	16	16	12	12
SiO_2 % ≤	1.5	1.8	1.5	1.8	1.5	1.8	1.5	1.8
显气孔率 % ≤ Apparent Porosity	16	17	16	17	16	17	16	17
体积密度 g/cm³ ≥ Bulk density	3.25	3.22	3.25	3.22	3.25	3.22	3.22	3.20
常温耐压强度 MPa ≥ C.C.S	45	40	45	40	45	40	45	40
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1700	1700	1700	1700	1700	1700	1700	1700

指标 Specification / 牌号 Brand	普通镁铬砖 $MgO-Cr_2O_3$ brick					
	ZMGe-16A	ZMGe-16B	ZMGe-12A	ZMGe-12B	ZMGe-8A	ZMGe-8B
MgO % ≥	55	50	60	55	65	60
Cr_2O_3 %≥	16	16	12	12	8	8
SiO_2 % ≤	3.5	4.5	3.5	4.5	4.0	5.0
显气孔率 % ≤ Apparent Porosity	18	18	18	18	20	20
体积密度 g/cm³ ≥ Bulk density	3.05	3.00	3.00	3.00	3.00	3.00
常温耐压强度 MPa ≥ C.C.S	35	30	35	30	35	30
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1620	1580	1620	1580	1620	1580

水泥窑砖
Cement kiln brick



指标 Specification / 牌号 Brand	镁铝尖晶石砖 MgO-Al_2O_3 spinel brick				镁铁尖晶石砖 MgO-Fe_2O_3 spinel brick		镁白云石砖 MgO dolomite brick	
	ZSMA-I	ZSMA-II	ZSMA-III	ZSMA-IV	ZSMF-I	ZSMF-II	ZSMG-I	ZSMG-II
MgO %	84	84	83	90	81	88	75	52
ZrO_2 %	-	-	0.9	-	-	-	1.5	1.2
Al_2O_3 %	12	12	12	6	12	4.5	-	-
Fe_2O_3 %	-	-	-	-	3	5	-	-
CaO %	-	-	-	-	-	-	20	38
显气孔率 % Apparent Porosity	17	16	17	16	17	16	14	14
体积密度 g/cm³ Bulk density	2.92	2.95	2.92	2.95	2.95	2.98	2.95	3.00
常温耐压强度 MPa Cold Crushing Strength	50	55	50	55	55	56	60	60
0.2MPa荷重软化开始温度 ℃ Refractoriness Under Load of 0.2MPa	1700	1700	1700	1700	1680	1700	1700	1700
热震稳定性（950℃，风冷）次 Thermal Shock Resistance 950℃ Air	100	100	100	100	120	100	50	80

镁钙砖
MgO-CaO brick



指标 Specification / 牌号 Brand	镁钙砖 MgO-CaO brick							
	ZMG-50A	ZMG-40A	ZMG-30A	ZMG-30B	ZMG-25A	ZMG-25B	ZMG-20A	ZMG-20B
MgO % ≥	40	50	60	58	62	60	68	66
CaO % ≥	48	38	28	28	23	23	18	18
Σ（F+A+S）% ≤	2.5	3.0	3.0	3.5	3.0	4.0	3.5	4.0
显气孔率 % ≤ Apparent Porosity	14	14	14	15	14	15	14	15
体积密度 g/cm³ ≥ Bulk density	3.00	3.05	3.05	3.00	3.00	2.95	2.95	2.90
常温耐压强度 MPa ≥ Cold Crushing Strength	55	55	55	50	55	50	55	50
0.2MPa荷重软化开始温度 ℃ ≥ Refractoriness Under Load of 0.2MPa	1700	1700	1700	1680	1700	1680	1700	1680

镁钙碳砖
MgO-CaO-C brick



指标 Specification / 牌号 Brand	镁钙碳砖 MgO-CaO-C brick（20系列）					
	ZMGT-203	ZMGT-205	ZMGT-208	ZMGT-253	ZMGT-255	ZMGT-258
MgO % ≥	68	65	62	63	60	57
CaO % ≥	18	18	18	23	23	23
C≤	4	6	9	4	6	9
Σ（F+A+S）% ≤	3	3	3	3	3	3
体积密度 g/cm³ ≥ Bulk density	3.00	3.00	2.98	2.98	2.98	2.96
显气孔率 % ≤ Apparent Porosity	9.0	8.0	8.0	9.0	8.0	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength	35	35	30	35	35	30

指标 Specification / 牌号 Brand	镁钙碳砖 MgO-CaO-C brick（30系列）					
	ZMGT-303	ZMGT-305	ZMGT-308	ZMGT-353	ZMGT-355	ZMGT-358
MgO % ≥	58	55	52	53	50	47
CaO % ≥	28	28	28	33	33	33
C≤	4	6	9	4	6	9
Σ（F+A+S）% ≤	3	3	3	3	3	3
体积密度 g/cm³ ≥ Bulk density	2.96	2.96	2.93	2.95	2.95	2.93
显气孔率 % ≤ Apparent Porosity	9.0	8.0	8.0	9.0	8.0	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength(CCS)	35	35	30	35	35	30

指标 Specification / 牌号 Brand	镁钙碳砖 MgO-CaO-C brick（40系列）					
	ZMGT-403	ZMGT-405	ZMGT-408	ZMGT-453	ZMGT-455	ZMGT-458
MgO % ≥	48	45	42	43	40	37
CaO % ≥	38	38	38	43	43	43
C≤	4	6	9	4	6	9
Σ（F+A+S）% ≤	3	3	3	3	3	3
体积密度 g/cm³ ≥ Bulk density	2.93	2.93	2.91	2.92	2.92	2.90
显气孔率 % ≤ Apparent Porosity	9.0	8.0	8.0	9.0	8.0	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength	35	35	30	35	35	30

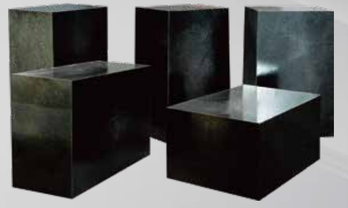
指标 Specification / 牌号 Brand	镁钙碳砖 MgO-CaO-C brick（50系列）		
	ZMGT-503	ZMGT-505	ZMGT-508
MgO % ≥	38	35	32
CaO % ≥	48	48	48
C≤	4	6	9
Σ（F+A+S）% ≤	3	3	3
体积密度 g/cm³ ≥ Bulk density	2.90	2.90	2.90
显气孔率 % ≤ Apparent Porosity	9.0	8.0	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength	35	35	30

镁碳砖
MgO-C brick



指标 Specification / 牌号 Brand	镁碳砖 MgO-C brick								
	ZMT-3A	ZMT-5A	ZMT-8A	ZMT-10A	ZMT-12A	ZMT-14A	ZMT-16A	ZMT-18A	ZMT-20A
MgO % ≥	87	85	82	80	78	76	74	72	70
C % ≥	3	5	8	10	12	14	16	18	20
体积密度 g/cm³ ≥ Bulk density	3.15	3.10	3.05	2.98	2.98	2.96	2.94	2.90	2.88
显气孔率 % ≤ Apparent Porosity	7.0	6.0	5.5	5.5	4.5	4.0	3.5	3.0	3.0
常温耐压强度 MPa ≥ Cold Crushing Strength	45	40	40	35	35	30	30	30	25
高温抗折强度（MPa）H.M.O.R 1400℃×0.5h ≥	-	-	-	6	6	10	8	10	8

镁铝碳砖
MgO-Al_2O_3-C brick



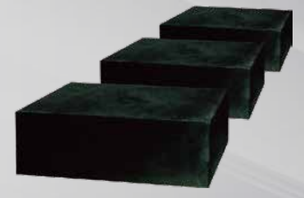
指标 Specification / 牌号 Brand	镁铝碳砖 MgO-Al_2O_3-C brick			
	ZMLT-10	ZMLT-15	ZMLT-20	ZMLT-30
Al_2O_3 % ≥	10	15	20	30
MgO+Al_2O_3 % ≥	75	75	75	75
C % ≥	10	10	10	10
体积密度 g/cm³ ≥ Bulk density	2.98	2.96	2.94	2.90
显气孔率 % ≤ Apparent Porosity	7.0	7.0	7.0	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength	35	35	35	35

铝镁碳砖
Al_2O_3-MgO-C brick



指标 Specification / 牌号 Brand	铝镁碳砖 Al_2O_3-MgO-C brick					
	ZLMT-55	ZLMT-60	ZLMT-65	ZLMT-70	ZLMT-75	ZLMT-80
Al_2O_3 % ≥	55	60	65	70	75	80
Al_2O_3+MgO % ≥	80	80	80	80	85	85
C % ≥	8	7	7	5	5	3
体积密度 g/cm³ ≥ Bulk density	2.95	2.95	2.95	3.05	3.15	3.20
显气孔率 % ≤ Apparent Porosity	7.0	7.0	7.0	7.0	8.0	10.0
常温耐压强度 MPa ≥ Cold Crushing Strength	35	35	35	40	45	45

导电镁碳砖
Conductive MgO-C brick



指标 Specification / 牌号 Brand	导电镁碳砖 Conductive MgO-C brick
	ZDMT-12
MgO % ≥	80
C % ≥	12
体积密度 g/cm³ ≥ Bulk density	2.90
显气孔率 % ≤ Apparent Porosity	8.0
常温耐压强度 MPa ≥ Cold Crushing Strength	26
电阻率 mΩm ≤ Electrical Resistivity	0.35

不定形耐火材料
Unshaped refractory



镁质喷补料

镁质喷补料 ZP 系列，主要采用优质镁砂或优质镁砂、镁白云石砂等为主体原料，工艺上确定最佳的颗粒级配并添加复合结合剂制成。产品附着率高，回弹率低；耐侵蚀、抗冲刷。其中，ZP-1 主要用于转炉耳轴、出钢口等部位的喷补维护；ZP-2 主要用于超高功率电炉渣线、热点等部位的喷补维护；ZP-3、ZP-4 主要用于 RH 炉浸渍管部位的喷补维护。

The ZP series of magnesium based gunning materials mainly use high-quality magnesium sand or high-quality magnesium sand, magnesium dolomite sand, etc. as the main raw materials, and are made by determining the optimal particle size distribution and adding composite binders in the process. High product adhesion rate and low rebound rate; Resistant to erosion and erosion. Among them, ZP-1 is mainly used for spray repair maintenance of converter trunnions, tapping holes, and other parts; ZP-2 is mainly used for spray repair maintenance of ultra-high power electric furnace slag lines, hot spots and other parts; ZP-3 and ZP-4 are mainly used for spray repair maintenance of RH furnace impregnation tube parts.

镁质烧补料

镁质烧补料 ZS-65 系以优质镁砂、改质沥青为主体原料，引入烧结剂、分散剂。产品具有良好的流动性和适宜的硬化时间；与被修补砖衬有良好的粘结强度；具有优异的高温性能和良好的抗钢水、熔渣的冲刷、侵蚀能力。产品主要应用于炼钢转炉装料侧、出钢侧和炉底的热修补。

The magnesia based sintering material ZS-65 is mainly made of high-quality magnesia sand and modified asphalt, with the introduction of sintering agents and dispersants. The product has good fluidity and suitable hardening time; Good bonding strength with the repaired brick lining; It has excellent high-temperature performance and good resistance to erosion and erosion of molten steel and slag. The product is mainly used for hot repair on the charging side, tapping side, and furnace bottom of steelmaking converters.

AOD 炉、VOD 炉配套用散料

为了适应于镁钙砖、镁钙碳砖炉衬的配套使用，中镁集团开发了与其相适应的配套用散料，即：可塑料 ZKS-1、填充料 ZTC-1 和捣打料 ZDD-1 等系列产品，分别应用于炉口、炉衬工作层与永久层之间、炉底边角缝处的捣打和填充。该系列散料在施工过程中采用无水结合剂，颗粒级配好，捣打体、填充体致密，在高温下产生陶瓷结合，烧结强度高，整体性好。

In order to adapt to the matching use of magnesium calcium bricks and magnesium calcium carbon brick furnace linings, China Magnesium Group has developed a series of matching loose materials, including plastic ZKS-1, filling material ZTC-1, and ramming material ZDD-1, which are respectively used for ramming and filling at the furnace mouth, between the working layer and permanent layer of the furnace lining, and at the corner joints of the furnace bottom. This series of loose materials adopts anhydrous binder during the construction process, with good particle grading, dense ramming and filling bodies, and produces ceramic bonding at high temperatures. The sintering strength is high, and the overall quality is good.

镁质火泥

为满足砌筑体的要求，选择不同材质的主体原料配以适宜的结合剂，分别制成镁质火泥ZN-1；镁铬质火泥 ZN-2 和镁铝质火泥 ZN-3。该系列产品施工性能好，粘结强度大，凝结时间在 120 秒左右，烧结强度高，适用于相应品种碱性砖的砌筑。

To meet the requirements of masonry, different materials of main materials are selected and suitable binders are used to produce magnesium based fire clay ZN-1; Magnesium chromium fire clay ZN-2 and magnesium aluminum fire clay ZN-3. This series of products has good construction performance, high bonding strength, setting time of about 120 seconds, high sintering strength, and is suitable for the masonry of corresponding types of alkaline bricks.

浇注料

ZJ-90 为刚玉尖晶石质浇注料，产品具有高的耐火度、高温强度和抗熔渣侵蚀性能，主要浇注施工于钢包精炼炉与钢水直接接触的部位。ZJ-65 为高铝质浇注料，主要浇注施工于钢包精炼炉永久衬，产品寿命可达 8～10 个炉役。

ZJ-90 is a corundum spinel based castable material with high refractory, high-temperature strength, and slag corrosion resistance. It is mainly used for pouring and construction in areas where the ladle refining furnace directly contacts the molten steel. ZJ-65 is a high alumina castable material mainly used for permanent lining of ladle refining furnaces, with a product lifespan of 8-10 furnace services.

镁质捣打料

ZD-1、ZD-2 系选用高铁高钙砂、优质镁砂为主体原料，控制适宜的颗粒级配使其具有极佳的堆积密度。产品易烧结，而且具有分层、过渡性烧结的特点，烧结层抗熔蚀、抗冲刷。产品主要应用于炼钢电炉和铁合金电炉的炉底，干法施工。

The ZD-1 and ZD-2 systems use high iron, high calcium sand, and high-quality magnesium sand as the main raw materials, and control the appropriate particle grading to achieve excellent stacking density. The product is easy to sinter and has the characteristics of layered and transitional sintering. The sintered layer is resistant to melting corrosion and erosion. The product is mainly used for the bottom of steelmaking electric furnaces and ferroalloy electric furnaces, and for dry construction.

ZD-3 系选用优质镁砂为主体原料，加入化学结合剂，硬化过程中产生化学陶瓷结合。抗熔蚀、抗冲刷，适用于冶金炉底边角缝处等的填充，施工时加水量为 5～7%。

The ZD-3 series uses high-quality magnesia as the main raw material, and chemical bonding agents are added to produce chemical ceramic bonding during the hardening process. Resistant to erosion and erosion, suitable for filling corners and seams at the bottom of metallurgical furnaces. The amount of water added during construction is 5-7%.

ZD-4 系选用优质烧结镁砂、电熔镁砂为主体原料，铬酸结合。高温下生成镁铬尖晶石，产品高温性能优异，抗侵蚀性能好，抗冲刷能力强。适用于钢铁冶金炉的炉底、炉口以及出钢口的捣打和填充。

The ZD-4 series uses high-quality sintered magnesia and fused magnesia as the main raw materials, combined with chromic acid. Magnesium chromium spinel is generated at high temperatures, resulting in excellent high-temperature performance, good corrosion resistance, and strong erosion resistance. Suitable for ramming and filling the bottom, mouth, and tap of steel metallurgical furnaces.

ZD-5 系选用优质镁砂或优质镁砂、镁橄榄石砂为主体原料，引入低温、中高温烧结剂，用于连铸中间包工作衬干式振动、捣打。施工简便，经低温加热烘烤，脱模后即可直接投入使用，可实现多炉连铸，使用后残衬易于拆除。

The ZD-5 series uses high-quality magnesia or magnesia and olivine sand as the main raw materials, and introduces low-temperature and medium high temperature sintering agents for dry vibration and compaction of the working lining of the continuous casting tundish. Easy to construct, it can be directly put into use after low-temperature heating and baking, demolding, and can achieve multi furnace continuous casting. The residual lining is easy to remove after use.

ZD-6 系采用镁砂、铬矿以及合成镁铬砂为主体原料，加入复合结合剂，选择适宜的粒度组成。因有复合尖晶石相的存在，产品对低碱度渣的抗侵蚀性能优异，主要应用于 RH 炉底的捣打和填充。

TThe ZD-6 series uses magnesia, chromium ore, and synthetic magnesia chromium sand as the main raw materials, adds a composite binder, and selects the appropriate particle size composition. Due to the presence of composite spinel phase, the product has excellent corrosion resistance to low alkalinity slag and is mainly used for ramming and filling the RH furnace bottom.

指标 Specification / 牌号 Brand	镁质喷补料 Magnesia Gunning mix				镁质烧补料 Magnesia burning mix	AOD 炉、VOD 炉配套用散料 Bulk materials for supporting AOD and VOD furnaces		
	ZP-1	ZP-2	ZP-3	ZP-4	ZS-65	ZKS-1	ZTC-1	ZTC-1
MgO % ≥	82	85	75	68	65	45	80	55
CaO % ≤	7	4	—	—	10	35	—	30
SiO_2 % ≤	3	7	5	6	7	2.0	8.0	2.0
Cr_2O_3 % ≥	—	—	3	—	—	—	—	—
C ≥	—	—	—	—	4	—	—	—
粒度(mm) Grain size	0 ~ 3	0 ~ 3	0 ~ 3	0 ~ 3	0 ~ 7	0 ~ 5	0 ~ 3	0 ~ 5
用途 Application	转炉 Converter	电炉、钢包 EAF 、Ladle	RH 炉 RH furnace	RH 炉 RH furnace	转炉 Converter	炉口可塑料 Furnace mouth can be made of plastic	炉衬填充料 Furnace lining filler	炉底捣打料 Furnace bottom ramming mix
结合方式 Bonding	—	—	—	—	—	陶瓷结合 Ceramic Bonding	陶瓷结合 Ceramic Bonding	陶瓷结合 Ceramic Bonding

指标 Specification / 牌号 Brand		镁质火泥 Magnesia Mortar		
		ZN-1	ZN-2	ZN-3
MgO % ≥		90	50	75
Cr_2O_3 % ≥		—	12	—
Al_2O_3 % ≥		—	—	8
粘结时间（min） Bonding time		2	2	2
施工加水量 Construction water addition		28 ~ 33	28 ~ 33	28 ~ 33
粒度 % Grain size	+0.5mm ≤	2	2	2
	-0.088mm ≥	65	65	65
粘结强度 MPa Bonding strength	110℃ × 24h	5 ~ 20	5 ~ 20	5 ~ 20
	1400℃ × 3h	25 ~ 40	25 ~ 40	25 ~ 40

指标 Specification / 牌号 Brand		浇注料 Castable	
		ZJ-90	ZJ-65
MgO % ≥		93	65
CaO % ≤		4	4
SiO_2 % ≤		1	10
体积密度 g/cm³ ≥ Bulk density	110℃ × 24h	2.90	2.60
	1500℃ × 3h	2.90	2.60
耐压强度 MPa ≥ Crushing Strength	110℃ × 24h	40	35
	1500℃ × 3h	80	70
抗折强度 MPa ≥ Flexural Strength	110℃ × 24h	7	6
	1500℃ × 3h	12	12
线变化率 % Line change rate	1500℃ × 3h	+0.5	0 ~ 0.15
粒度（mm）Grain size		0 ~ 5	0 ~ 10

指标 Specification / 牌号 Brand	镁质捣打料 Magnesia Ramming Material					
	ZD-1	ZD-2	ZD-3	ZD-4	ZD-5	ZD-6
MgO % ≥	80	65	88	90	50	58
CaO %	7 ~ 12	16 ~ 21	—	—	—	—
SiO_2 % ≤	1.2	1.2	5.0	2.0	20	1.8
Cr_2O_3 % ≥	—	—	—	1.0	—	16
Fe_2O_3 %	3.5 ~ 5.5	3.5 ~ 5.5	—	—	—	—
粒度(mm) Grain size	0 ~ 7	0 ~ 7	0 ~ 5	0 ~ 5	0 ~ 5	0 ~ 5
用途 Application	电炉底 EAF Bottom	电炉底 EAF Bottom	冶金炉底 Metallurgical Furnace Bottom	冶金炉底、炉口、出钢口 Metallurgical Furnace Bottom/Mouth/Tap Hole	中间包 Tundish	RH 炉底 RH Furnace
结合方式 Bonding	陶瓷结合 Ceramic Bonding	陶瓷结合 Ceramic Bonding	化学陶瓷结合 Chemical and Ceramic Bonding	化学陶瓷结合 Chemical and Ceramic Bonding	化学陶瓷结合 Chemical and Ceramic Bonding	化学陶瓷结合 Chemical and Ceramic Bonding



镁质原料

镁砂是生产碱性砖和镁质不定形耐火材料的基础原料，因采用矿石种类和生产工艺的不同，可以加工出不同品质要求的镁质耐火原料。中镁集团拥有营口关山耐火原料生产基地，为生产各种优质镁砂提供了根本保证。

Magnesium sand is the basic raw material for producing alkaline bricks and magnesium based amorphous refractory materials. Due to the different types of ores and production processes used, magnesium based refractory materials with different quality requirements can be processed. Zhongmei Group has a production base for refractory raw materials in Guanshan, Yingkou, providing a fundamental guarantee for the production of various high-quality magnesia.

镁钙砂 ZMGS-20、ZMGS-30

镁钙砂亦称镁白云石砂，系采用杂质含量极低的白云石、高钙菱镁石为原料，经轻烧、细磨、压球，最终在以焦炭或白煤为燃料的竖窑中，高温煅烧而成。其显微结构的特点是：主晶相方镁石和方钙石之间形成直接结合，分布均匀；MgO 形成结晶网络，方镁石包裹方钙石。产品结构致密，气孔少且小，抗炉外精炼渣侵蚀性能优异。镁钙砂耐高温性能、抗水化性能皆好，主要用于生产镁钙砖、镁钙碳砖及不定形耐火材料。

Magnesium calcium sand, also known as magnesium dolomite sand, is made from dolomite and high calcium magnesite with extremely low impurity content as raw materials, which are lightly burned, finely ground, and pressed into balls. Finally, it is calcined at high temperature in a vertical kiln using coke or white coal as fuel. The characteristic of its microstructure is that the main crystal phase, periclase and periclase, forms a direct bond and is evenly distributed; MgO forms a crystalline network, with periclase enveloping periclase. The product has a dense structure, few and small pores, and excellent resistance to corrosion from refining slag outside the furnace. Magnesium calcium sand has good high-temperature resistance and hydration resistance, and is mainly used for producing magnesium calcium bricks, magnesium calcium carbon bricks, and amorphous refractory materials.

高铁高钙砂 ZMGFS-70、ZMGFS-80

在镁钙砂生产工艺的基础上，引入添加成分 FeO/Fe_2O_3，即可合成出高铁高钙砂。其物相组成主要为方镁石、铁酸二钙及少量含Al_2O_3和SiO_2的玻璃相。高铁高钙砂是一类在较低温度下即具有烧结性能的镁质原料，主要用于构筑或修补电弧炉炉底。

On the basis of the production process of magnesium calcium sand, the addition of FeO/Fe_2O_3 can be used to synthesize high iron and high calcium sand. Its phase composition is mainly composed of periclase, dicalcium ferrite, and a small amount of glass phase containing Al_2O_3 and SiO_2. High iron and high calcium sand is a type of magnesium based raw material with sintering performance at lower temperatures, mainly used for constructing or repairing the bottom of electric arc furnaces.

电熔镁砂 ZDMS-96、ZDMS-97、ZDMS-98

选用特级、一级菱镁石或轻烧镁粉为原料，在电弧炉中高温熔融而成。电熔镁砂中方镁石晶粒大，结构致密，高温体积稳定性优越，是生产高级碱性砖和镁碳系列耐火制品的良好原料。

Made by using special grade, first grade magnesite or lightly burned magnesium powder as raw materials and melting them at high temperature in an electric arc furnace. Electric fused magnesia has a large grain size, dense structure, and superior high-temperature volume stability, making it a good raw material for producing high-grade alkaline bricks and magnesia carbon refractory products.

电熔镁铬砂 ZDMGeS-20、ZDMGeS-36

选用高纯度轻烧镁粉和优质铬精矿为原料，在电弧炉中高温熔融而成。电熔镁铬砂中方镁石晶粒大，在方镁石晶体内脱溶出晶内尖晶石MK、MF；在方镁石晶体间形成晶间尖晶石 MA、MF。主晶相之间直接结合显著，结构致密，是生产半再结合镁铬砖、电熔再结合镁铬砖的优质原料。

Using high-purity light burned magnesium powder and high-quality chromium concentrate as raw materials, it is melted at high temperature in an electric arc furnace. The fused magnesia chromium sand has a large grain size of periclase, and the spinel MK and MF in the periclase crystal are desolved; Formation of intergranular spinel MA and MF between periclase crystals. The direct bonding between the main crystal phases is significant, and the structure is dense. It is a high-quality raw material for producing semi rebonded magnesium chromium bricks and electric melting rebonded magnesium chromium bricks.

指标 Specification / 牌号 Brand	电熔镁铬砂 Electro fused MgO Cr_2O_3 sand	
	ZDMGeS-20	ZDMGeS-36
MgO % ≥	65	40
Cr_2O_3 % ≥	20	36
SiO_2 % ≤	1.20	1.40
CaO % ≤	1.20	1.00
体积密度 g/cm³ ≥ Bulk density	3.65	3.80

指标 Specification / 牌号 Brand	镁钙砂 Calcium magnesium sand	
	ZMGS-20	ZMGS-30
MgO % ≥	75	65
CaO % ≥	20	30
Σ（F+A+S）% ≤	2.7	2.7
体积密度 g/cm³ ≥ Bulk density	3.20	3.20

指标 Specification / 牌号 Brand	高铁高钙砂 High iron and high calcium sand	
	ZMGFS-70	ZMGFS-80
MgO % ≥	72	82
CaO %	16 ~ 21	7 ~ 12
Fe_2O_3 %	3.5 ~ 5.5	3.5 ~ 5.5
体积密度 g/cm³ ≥ Bulk density	3.25	3.25

指标 Specification / 牌号 Brand	电熔镁砂 Electro fused magneisa		
	ZDMS-96	ZDMS-97	ZDMS-98
MgO % ≥	96	97	97.7
SiO_2 % ≤	2.00	1.30	1.00
CaO % ≤	1.50	0.90	0.70
体积密度 g/cm³ ≥ Bulk density	3.45	3.45	3.50

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