



烧结刚玉

SINTERED ALUMINA



原料让制品更美好 · Better Raw Materials, Better Products



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江苏晶鑫新材料股份有限公司
JIANGSU JINGXIN NEW MATERIALS CO., LTD.

烧结刚玉 SINTERED ALUMINA



烧结刚玉又称板状刚玉，一般采用工业氧化铝或者煅烧氧化铝为原料，在略低于 Al_2O_3 熔点（2050℃）的高温下快速烧结完全再结晶的 $\alpha-Al_2O_3$ ，其呈现二维平面的板片状且有较多晶间和晶内圆形封闭气孔的显微结构特征。公司烧结刚玉的生产线自动化程度、技术工艺水平、产品性能指标等都居于国内领先水平。晶鑫公司的烧结刚玉产品畅销至世界各国的400多家大中型企业，广泛服务于钢铁、有色冶炼、石化、铸造、玻璃、水泥、垃圾焚烧等多个高温行业。

公司烧结刚玉具有高耐火度、低碱、高强度、高抗热冲击性能、优异的抗渣侵蚀性能和高温体积稳定性，更具有合理的显微结构、晶体发育尺寸以及发挥材料最佳性能的体积密度、闭口气孔和气孔分布。公司的烧结刚玉已日益成为客户优先选用的刚玉材料。

Sintered alumina, also known as tabular corundum, is generally made of industrial alumina or calcined alumina, which is rapidly sintered and completely recrystallized at a high temperature slightly lower than the melting point of Al_2O_3 (2050 °C) $\alpha-Al_2O_3$, which presents a two-dimensional planar plate shape and has many intergranular and intragranular round closed pores. The automation degree, technical process level and product performance index of the company's sintered corundum production line are all in the leading domestic level. Jingxin's sintered corundum products sell well to more than 400 large and medium-sized enterprises around the world, and are widely used in many high-temperature industries such as steel, nonferrous metallurgy, petrochemical, casting, glass, cement, garbage incineration, etc.

The company's sintered corundum has high refractoriness, low alkali, high strength, high thermal shock resistance, excellent slag corrosion resistance and high temperature volume stability, more reasonable microstructure, crystal development size, and volume density, closed pores and air pore distribution that give full play to the best performance of the material. The company's sintered corundum has increasingly become the preferred corundum material for customers.

JGS-99烧结刚玉性能指标
Data sheet of JGS-99 Sintered alumina

化学组成[%] Chemical composition	颗粒 Grain	-0.1mm	-20 μm
Al_2O_3 (差减法)	99.5	99.4	99.3
Na_2O	≤0.40	≤0.40	≤0.40
SiO_2	≤0.08	≤0.10	≤0.10
Fe_2O_3	≤0.06	≤0.08	≤0.08
Fe (磁性)	≤0.02	≤0.02	≤0.02

物理指标 Physical indicators	颗粒1) Grain1)
体积密度 [g/cm ³]	≥3.50
显气孔率 [%]	≤5.00
吸水率 [%]	≤1.50

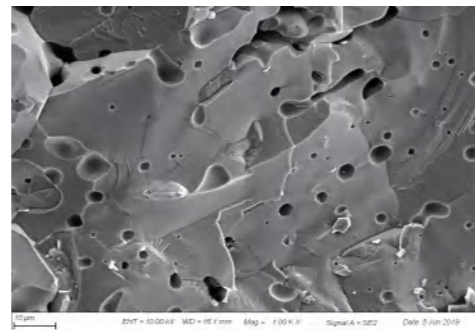
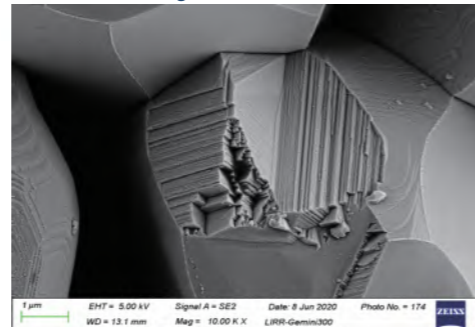
所有指标依据国标测试方法检测。

1) 颗粒粒度规格为5-3mm。

颗粒粒度分布
Particle size distribution

规格 (mm) Specification (mm)	筛目 Mesh	颗粒组成典型值 (%) Typical value (%)	最小-最大值 (%) Min-Max (%)
5-3			
+5mm	-	5	0-10
+4mm	5	40	
+2.8mm	7	42	
-2.0mm	10	1	1-2
3-1			
+3.35mm	6	3	1-5
+2.0mm	10	42	
-1.0mm	18	4	0-10
1-0			
+1.0mm	18	3	0-6
+0.5mm	35	46	
-0.1mm	150	18	10-25
1-0.5			
+1.4mm	14	1	0-3
+1.0mm	18	5	
+0.71mm	25	40	
-0.5mm	35	6	0-10
0.5-0			
+0.6mm	30	1	0-2
+0.5mm	35	4	
+0.25mm	60	55	
-0.045mm	325	11	5-20
0.045-0			
+0.075mm	200	0	0-3
-0.045mm	325	95	90-100

烧结刚玉 SEM
SEM images of Sintered alumina



产品粒度规格 Particle size

可提供20mm-3 μm各种粒度颗粒料和粉料。

Available sizes from 20mm to 3 μm.

产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。

25kg/bag, 1000kg/bag or other specific packing according to user's requirements.

微孔烧结刚玉 MICROPOROUS SINTERED ALUMINA

微孔烧结刚玉采用工业氧化铝、氢氧化铝和 $\alpha-Al_2O_3$ 微粉为起始物料，经超高温竖窑烧结而成。通过控制烧成制度对其烧结扩散传质行为进行调控，改善微孔结构的大小和分布，提高亚微米、纳米气孔的比例，促使材料内部封闭气孔更均匀地分散在刚玉晶体之间和内部，提高材料微观结构的整体均匀性，可以起到优化材料服役过程中内部应力分布和反应界面行为；经测试，微孔烧结刚玉内部气孔平均孔径约0.14 μm，800℃导热系数比烧结刚玉降低38%，实现使用寿命和隔热保温的协同提升。

在耐火制品中使用微孔烧结刚玉部分或全部代替烧结刚玉：

1、由于晶体表面大量微纳米孔的存在，骨料与基质的界面结合性能提高，从而提高了制品内部结合界面的断裂能，制品的力学性能和抗热震性能得到提升；

2、微-纳米孔的存在有利于熔渣中析出的高熔点相达到过饱和，并快速长大形成致密的隔离层，制品抗渣侵蚀性能提升；

3、微孔烧结刚玉热导率的降低，直接有利于制品热导率降低，节能隔热效果提升。

Microporous sintered alumina is made by using industrial alumina, aluminium hydroxide and $\alpha-Al_2O_3$ micropowder as raw materials and fast sintered in the high temperature shaft kiln. There are a lot of nano and sub-micron closed pores in the microporous sintered alumina crystal, the average pore diameter is 140 nm, and the thermal conductivity of 800 °C is 38% lower than the common sintered alumina, which reduced the structural thermal stress and improves the thermal shock resistance of the material.

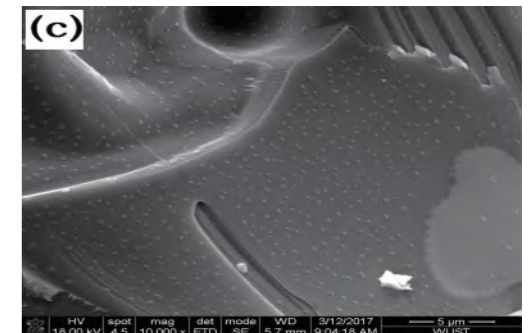
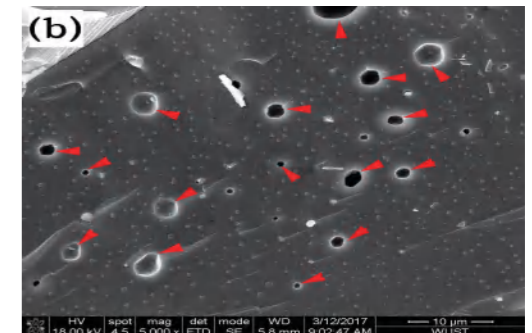
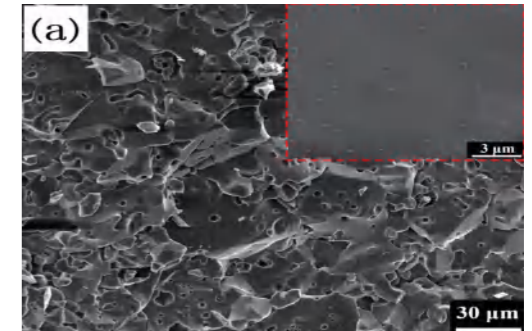
The Microporous sintered alumina can be used in refractory products to completely or partly replace sintered alumina. It has the following features comparing with the later:

1. The interfacial bonding properties between aggregate and powder is improved, and the strength and corrosion resistance are improved

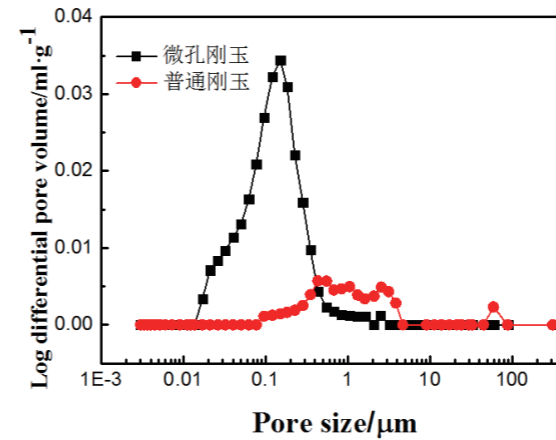
2. The products will have better thermal shock resistance.

3. The thermal conductivity of the products is lower, which has the function of energy saving and heat preservation.

微孔烧结刚玉 SEM
SEM images of Microporous sintered alumina



微孔烧结刚玉孔径分布
Pore size distribution



产品粒度规格 Particle size

可提供15mm-3 μm各种粒度颗粒料和粉料。
Available sizes from 15mm to 3 μm.

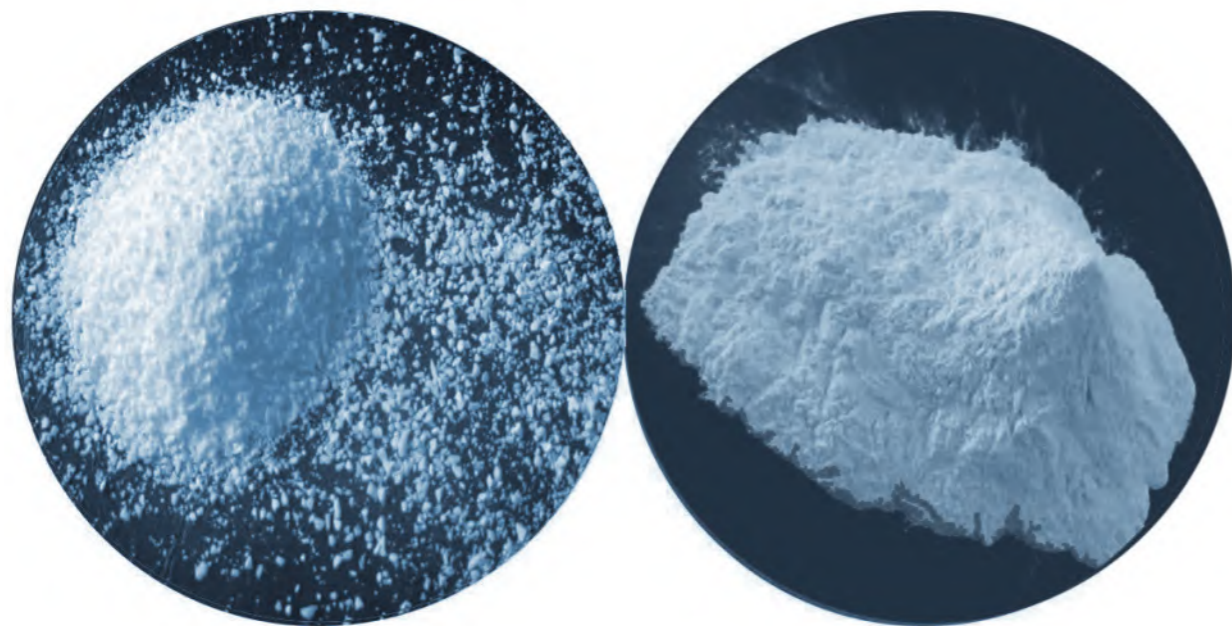
产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。
25kg/bag, 1000kg/bag or other specific packing according to user's requirements.



烧结铝镁尖晶石

SINTERED MAGNESIUM ALUMINATE SPINEL



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烧结铝镁尖晶石

SINTERED MAGNESIUM ALUMINATE SPINEL

烧结铝镁尖晶石以工业氧化铝与重烧镁为原料，经多级均化工艺，在超高温竖窑烧结而成，具有体积密度大，尖晶石相含量高，晶体发育好，结构均匀，性能稳定。铝镁尖晶石具有优越的抗侵蚀、抗剥落，抗渣性好，热震稳定性好，耐高温等特点。

优质合成铝镁尖晶石为不定形及定型高性能耐火材料的生产提供了保证，是水泥回转窑用镁铝尖晶石砖、钢包衬砖、钢包浇注料等耐火产品的理想原料，广泛用于钢铁冶金、水泥回转窑及玻璃工业窑炉上。

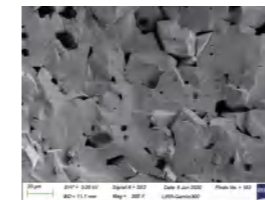
按照氧化铝含量，烧结铝镁尖晶石分为JMA-50、JMA-66、JMA-78和JMA-90等多品种。

Sintered magnesium aluminate spinel is made with imported industrial alumina and dead-burned magnesia as raw materials, through multi-stage homogenization process, and sintered at ultra high temperature in shaft kiln. The product has high bulk density, more content of spinel phases, good crystal growth, uniform structure, consistent properties, so as to have good resistance to erosion, to spalling, to slag, to thermal shock, and to high temperature.

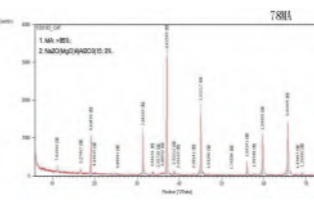
High quality pre-synthesis magnesium aluminate spinel can be used as a new raw material for the manufacturing of shaped and unshaped refractory products, for example, for the application in magnesium aluminate spinel bricks for cement rotary kiln, bricks for ladle lining, castables for ladle, which has been widely used in iron and steel making, cement rotary kilns and glass furnaces.

The brand names of JMA-50、JMA-66、JMA-78 and JMA-90 etc are available according to alumina content.

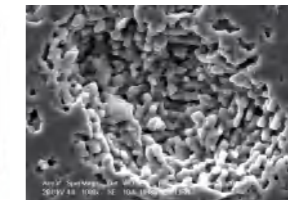
JMA-78尖晶石 SEM
SEM image of JMA-78 spinel



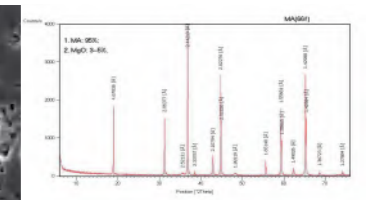
JMA-78尖晶石 XRD
XRD of JMA-78 spinel



JMA-66尖晶石 SEM
SEM image of JMA-66 spinel



JMA-66尖晶石 XRD
XRD of JMA-66 spinel



JMA-78烧结铝镁尖晶石性能指标
Data sheet of JMA-78 Sintered magnesium aluminate spinel

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥ 75	77.23
MgO	%	≥ 20	21.57
CaO	%	≤ 0.40	0.35
Na ₂ O	%	≤ 0.35	0.25
SiO ₂	%	≤ 0.30	0.19
Fe ₂ O ₃	%	≤ 0.25	0.18
体积密度 Bulk Density	g/cm ³	≥ 3.20	3.22
显气孔率 Apparent porosity	%	≤ 3.00	2.90
吸水率 Water absorption	%	≤ 1.00	0.95

JMA-66烧结铝镁尖晶石性能指标
Data sheet of JMA-66 Sintered magnesium aluminate spinel

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥ 64	65.32
MgO	%	≥ 32	33.45
CaO	%	≤ 0.50	0.40
Na ₂ O	%	≤ 0.30	0.20
SiO ₂	%	≤ 0.35	0.25
Fe ₂ O ₃	%	≤ 0.30	0.23
体积密度 Bulk Density	g/cm ³	≥ 3.20	3.23
显气孔率 Apparent porosity	%	≤ 3.00	2.50
吸水率 Water absorption	%	≤ 1.00	0.78

JMA-50烧结铝镁尖晶石性能指标
Data sheet of JMA-50 Sintered magnesium aluminate spinel

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥ 48	50.53
MgO	%	≥ 46	48.12
CaO	%	≤ 0.60	0.48
Na ₂ O	%	≤ 0.25	0.18
SiO ₂	%	≤ 0.45	0.30
Fe ₂ O ₃	%	≤ 0.35	0.25
体积密度 Bulk Density	g/cm ³	≥ 3.20	3.28
显气孔率 Apparent porosity	%	≤ 3.00	2.40
吸水率 Water absorption	%	≤ 1.00	0.90

JMA-90烧结铝镁尖晶石性能指标
Data sheet of JMA-90 Sintered magnesium aluminate spinel

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥ 89	89.76
MgO	%	≥ 8	9.32
CaO	%	≤ 0.30	0.21
Na ₂ O	%	≤ 0.35	0.28
SiO ₂	%	≤ 0.25	0.18
Fe ₂ O ₃	%	≤ 0.20	0.11
体积密度 Bulk Density	g/cm ³	≥ 3.30	3.35
显气孔率 Apparent porosity	%	≤ 3.00	2.40
吸水率 Water absorption	%	≤ 1.00	0.90

产品粒度规格 Particle size

可提供15mm-3 μm各种粒度颗粒料和粉料。
Available sizes from 15mm to 3 μm.

产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。
25kg/bag、1000kg/bag or other specific packing according to user's requirements.



烧结莫来石 SINTERED MULLITE



原料让制品更美好 · Better Raw Materials, Better Products

江苏晶鑫新材料股份有限公司
JIANGSU JINGXIN NEW MATERIALS CO., LTD.

烧结莫来石 SINTERED MULLITE

烧结莫来石采用工业氧化铝和高岭土等高纯原料，经超细粉磨、成坯、竖窑高温烧结而成。该产品具有纯度高、晶体发育好、膨胀均匀、热震稳定性好、荷重软化点高、高温蠕变小、化学稳定性好等特点，是钢铁冶金、陶瓷、建材、化工、铸造等行业用耐火材料的理想原材料。按照氧化铝含量分为JMS-75、JMS-70、JMS-60等多品种。

Sintered mullite is made using high purity raw materials, such as imported industrial alumina and kaolin and after ultrafine grinding, balling and sintering at high temperature in shaft kiln. The product has high purity, good crystal growth, uniform expansion, good thermal shock resistance, high refractoriness under load, low creep at high temperature, and good resistance to chemical corrosion. It is an ideal material for the application in industries of iron and steel-making, ceramics, construction material, chemical, casting and other industries. The brand names of JMS-75, JMS-70, JMS-60 etc are available according to alumina content.

JMS-75烧结莫来石性能指标
Data sheet of JMS-75 Sintered mullite

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥74	75.82
SiO ₂	%	≥21	23.41
Na ₂ O+K ₂ O	%	≤0.40	0.28
Fe ₂ O ₃	%	≤0.50	0.14
TiO ₂	%	≤0.40	0.15
体积密度 Bulk Density	g/cm ³	≥2.85	2.86
显气孔率 Apparent porosity	%	≤3.00	2.20
吸水率 Water absorption	%	≤1.50	0.90

JMS-70烧结莫来石性能指标
Data sheet of JMS-70 Sintered mullite

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥69	71.56
SiO ₂	%	≥26	27.71
Na ₂ O+K ₂ O	%	≤0.40	0.25
Fe ₂ O ₃	%	≤0.50	0.17
TiO ₂	%	≤0.45	0.18
体积密度 Bulk Density	g/cm ³	≥2.80	2.82
显气孔率 Apparent porosity	%	≤3.00	2.50
吸水率 Water absorption	%	≤1.50	1.00

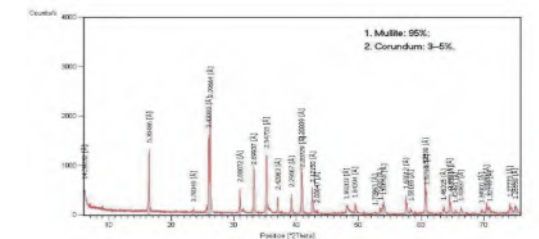
JMS-60烧结莫来石性能指标
Data sheet of JMS-60 Sintered mullite

项目 Item	单位 Unit	指标 Specification	典型值 Typical value
Al ₂ O ₃	%	≥58	60.22
SiO ₂	%	≥37	38.95
Na ₂ O+K ₂ O	%	≤0.40	0.23
Fe ₂ O ₃	%	≤0.50	0.25
TiO ₂	%	≤0.50	0.22
体积密度 Bulk Density	g/cm ³	≥2.70	2.75
显气孔率 Apparent porosity	%	≤3.00	2.30
吸水率 Water absorption	%	≤1.50	1.00

JMS-70莫来石 SEM
SEM image of JMS-70 Sintered mullite



JMS-70莫来石 XRD
XRD of JMS-70 Sintered mullite



产品粒度规格 Particle size

可提供15mm-3μm各种粒度颗粒料和粉料。
Available sizes from 15mm to 3μm.

产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。
25kg/bag, 1000kg/bag or other specific packing according to user's requirements.



活性氧化铝微粉

REACTIVE ALUMINA MICPOWDER

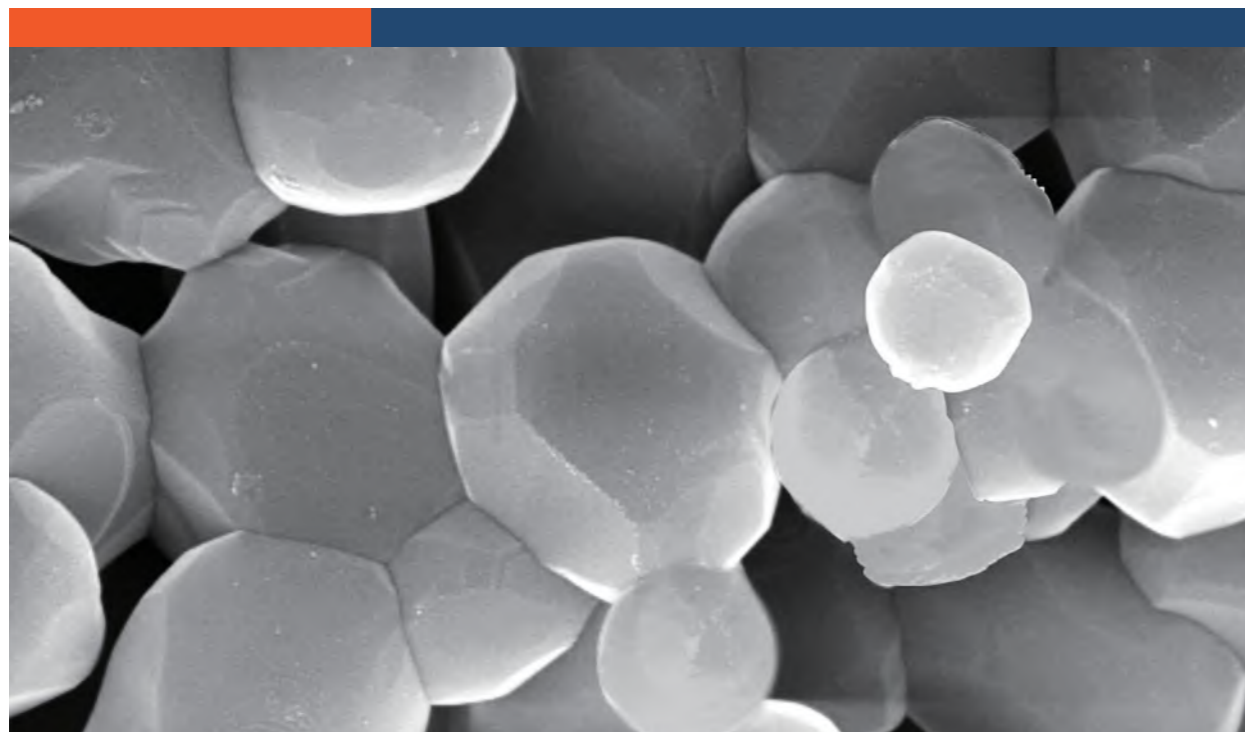
活性氧化铝微粉

REACTIVE ALUMINA MICPOWDER

活性 α -氧化铝微粉采用特殊工艺煅烧，超细粉磨，多级选粉工艺制备。具有纯度高、粒径分布优和出色的烧结活性，适用于生产高性能耐火材料、电子陶瓷等产品。活性 α -氧化铝微粉能够被很好地在微米、亚微米范围内控制其粒度分布，具有优异的流变性而有利于施工；具有优异的烧结活性，在耐火材料中起着不可替代的作用：1、通过优化颗粒堆积降低不定形耐火材料的加水量；2、通过形成牢固的陶瓷结合相提高耐磨性和机械强度；3、通过取代低耐火度的超细粉提高制品高温使用性能。

The reactive alumina micropowder, made through specially sintering process, grinding process and multistage power size separation, has high purity, good particles size distribution and excellent sintering activity, which is suitable for the application in the production of high performance refractory material, and electronic ceramics products. The reactive alpha alumina micropowder can be well controlled in particle size distribution in the range of submicron, leading to be with excellent grain packing density good rheological property and stable workability as well as good sintering activity, which play a unique role in refractory:

1. By optimizing the particle accumulation to reduce the addition amount of water
2. The wear resistance and mechanical strength are improved by forming a solid ceramic bonding phase;
3. The high-temperature performance of the product is improved by replacing the ultra-fine powder with low refractoriness.



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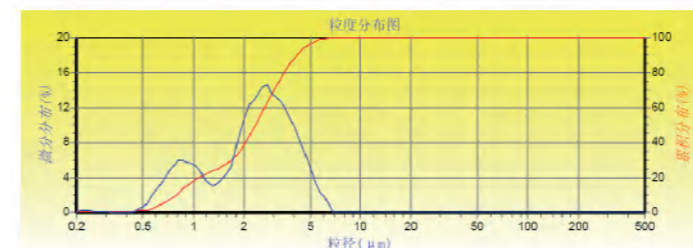
活性氧化铝性能指标
Data sheet of Reactive alumina micropowder

项目 Item	单位 Unit	指标 Specification						
		HA110	HA115	HA125	HA110-L	HA115-L	HA125-L	HA203
Al ₂ O ₃	%	≥99.5	≥99.5	≥99.5	≥99.6	≥99.6	≥99.6	≥99.6
Na ₂ O	%	≤0.25	≤0.25	≤0.25	≤0.12	≤0.12	≤0.12	≤0.12
SiO ₂	%	≤0.06	≤0.06	≤0.06	≤0.06	≤0.06	≤0.06	≤0.06
Fe ₂ O ₃	%	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03
CaO	%	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03	≤0.03
D50/Malvern	μm	1.0-1.5	1.5-2.0	2.0-3.0	1.0-1.5	1.5-2.0	2.0-3.0	2.0-2.8
D90/Malvern	μm	≤5.0	≤6.0	≤7.0	≤5.0	≤6.0	≤7.0	≤7.0
比表面积/BET	m ² /g	4.0-7.0	2.0-5.0	1.0-4.0	4.0-7.0	2.0-5.0	1.0-4.0	1.0-4.0

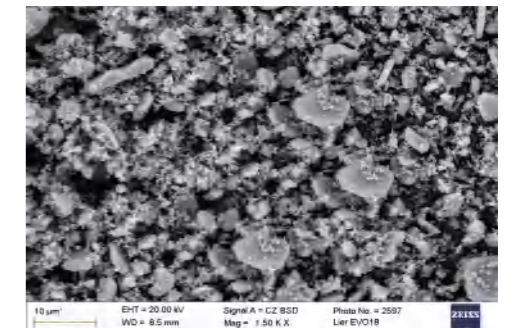
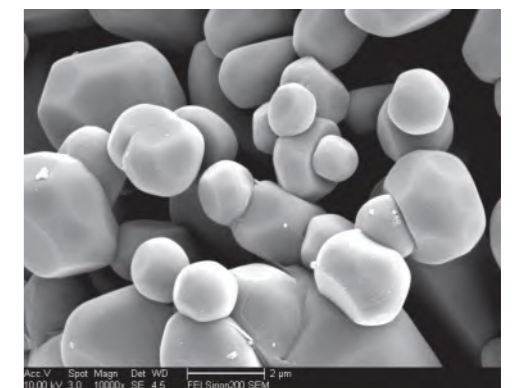
粒度分布/ Particle Size Distribution	单峰 Mono- modal	单峰 Mono- modal	单峰 Mono- modal	单峰 Mono- modal	单峰 Mono- modal	单峰 Mono- modal	双峰 Bi- modal

活性氧化铝HA203粒度分布图
Particle size distribution of HA203

D(4.3)	2.44	μm	D 50	2.35	μm	D(3.2)	1.61	μm	S.S.A	3.72	sq.m/c.c.
D 10	0.78	μm	D 25	1.40	μm	D 75	3.27	μm	D 90	4.22	μm



活性氧化铝微粉 SEM
SEM images of Reactive alumina micropowder



产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。
25kg/bag、1000kg/bag or other specific packing according to user's requirements.



煅烧氧化铝微粉

CALCINED ALUMINA MICRO POWDER



原料让制品更美好 · Better Raw Materials, Better Products

江苏晶鑫新材料股份有限公司
JIANGSU JINGXIN NEW MATERIALS CO., LTD.

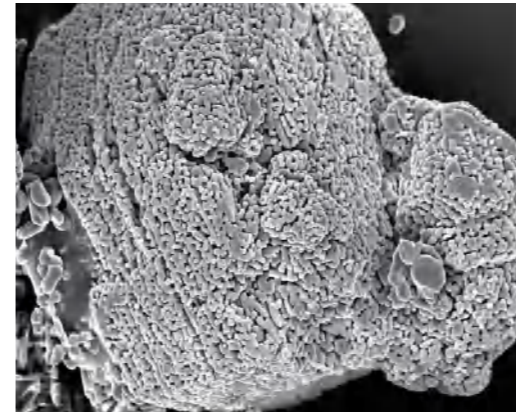
煅烧氧化铝微粉

CALCINED ALUMINA MICROPOWDER

煅烧氧化铝微粉是以工业氧化铝为原料，在适当的温度下煅烧成晶型稳定的 α -氧化铝。添加煅烧氧化铝微粉制成的耐火制品具有优良的力学强度、硬度、高电阻率和导热性，可广泛应用于电子陶瓷、结构陶瓷、耐火材料、耐磨材料、抛光材料等领域。

Calcined alumina micropowder is made by using industrial alumina as raw materials and calcined at proper temperature under which stable alpha alumina micro-powder is formed. Alumina products with such calcined alumina powder as raw material have excellent mechanical strength, high hardness, higher electric resistivity and good thermal conductivity. The calcined alumina micropowder can be widely used in electronic equipment, structural ceramics, refractories, abrasives, polishing materials, etc

煅烧氧化铝微粉 SEM
SEM image of Calcined alumina micropowder



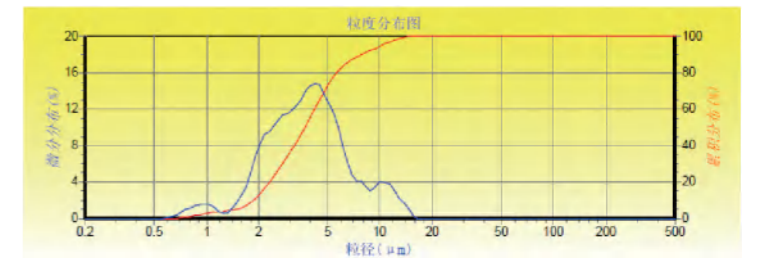
产品包装 Packing

25kg/袋、1000kg/袋或根据用户要求包装。
25kg/bag, 1000kg/bag or other specific packing according to user's requirements.

煅烧氧化铝微粉性能指标
Data sheet of Calcined alumina micropowder

项目 Item	单位 Unit	指标 Specification		
		DA30	DA50	通用型
Al_2O_3	%	≥99.5	≥99.5	≥99.4
Na_2O	%	≤0.25	≤0.25	≤0.40
SiO_2	%	≤0.06	≤0.06	≤0.08
Fe_2O_3	%	≤0.04	≤0.04	≤0.04
CaO	%	≤0.03	≤0.03	≤0.03
D50/Malvern	μm	3.0-5.0	5.0-7.0	4.0-6.0
α 相含量	%	≥94	≥94	≥93
比表面积/BET	m^2/g	0.5-2.0	0.5-2.0	0.5-2.0
粒度分布/ Particle Size Distribution	—	单峰 Mono-moda	单峰 Mono-moda	单峰 Mono-moda

煅烧氧化铝微粉 DA30粒度分布图
Particle size distribution of DA30



煅烧氧化铝微粉 DA50粒度分布图
Particle size distribution of DA50

