

ZIBO HUAO NEW MATERIALS CO.,LTD

淄博华澳新材料有限公司

Asset Management | Engineering & Mechanical | Process Equipment
| Wear Prevention | Grinding | Refractory Raw Materials

*Delivering excellence in wear prevention products and service to the hard rock industry
, Including cast basalt, cast silicon carbide and alumina*



Alumina based products

- ❖ Alumina Ceramic tiles
 - ❖ Ceramic lining wear resistant panel/plate
 - ❖ Mosaic tiles
 - ❖ Cyclone, pipe and liner
 - ❖ Alumina ceramic tubes
 - ❖ Grinding media—alumina ceramic balls/beads
- 



92% & 95% Alumina Ceramic Tile

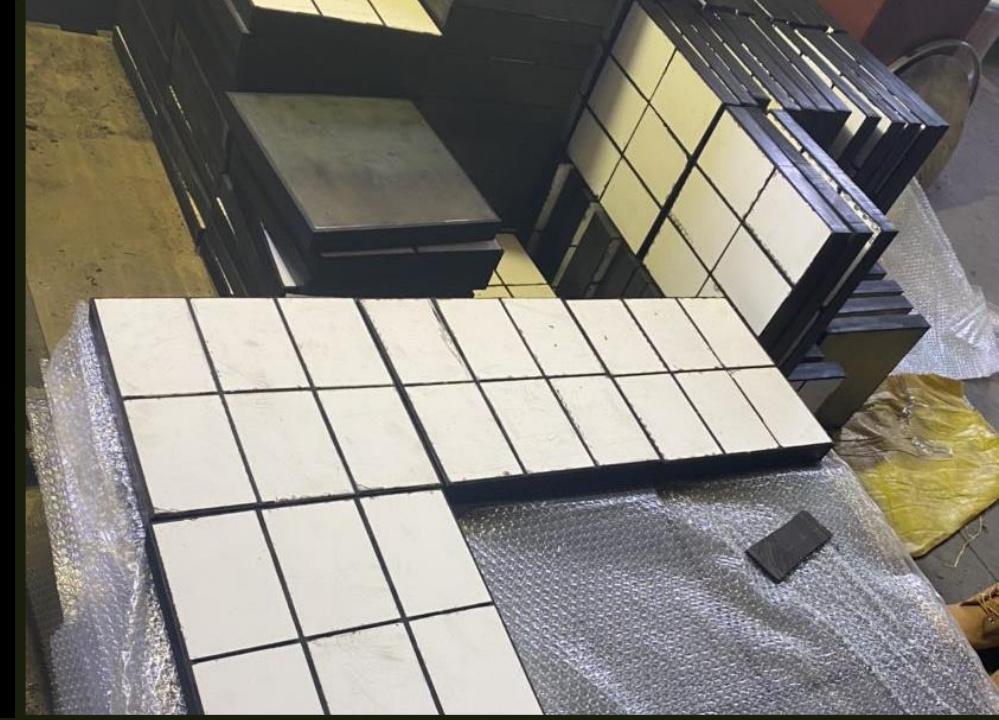
All kinds of shapes for instance square shape, rectangle shape, trapezoid, cylinder and some special shape.



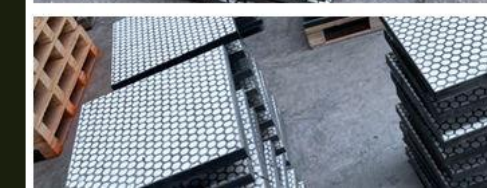
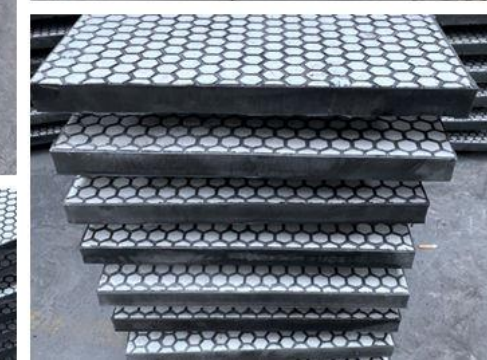
DETAILINFORMATION/INDEX

项目/产品 ITEM/PRODUCT	HA 92	HA 95	ZTA
AL ₂ O ₃ (%)	92±0.5	95±0.5	76±0.5
ZrO ₂ (%)			20
抗弯强度 (MPa) Bending Strength	> 220	> 280	> 400
断裂韧性 (MPam 1/2) Fracture Toughness	> 3.60	> 3.90	> 4.50
洛氏硬度 (HRV) Rockwell Hardness	> 82	> 88	> 90
磨损体积 (cm³) Wear Volume	< 0.50	< 0.30	< 0.15

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Ceramic Lining Wear Resistant Panel/Plate



Introduction of wear resistant panel

Impact panels have the alumina exposed to the material flow whilst being fully embedded within a specially designed elastomer.

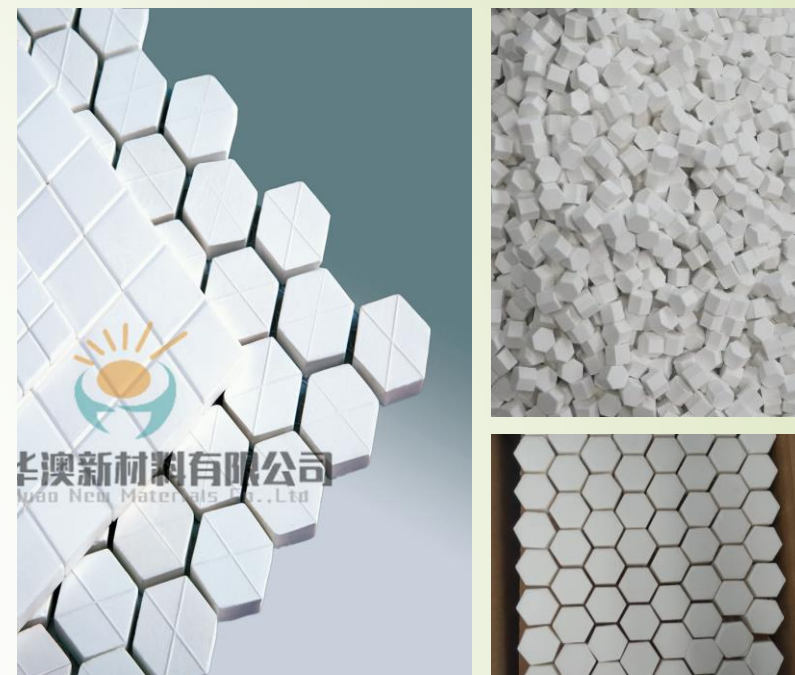
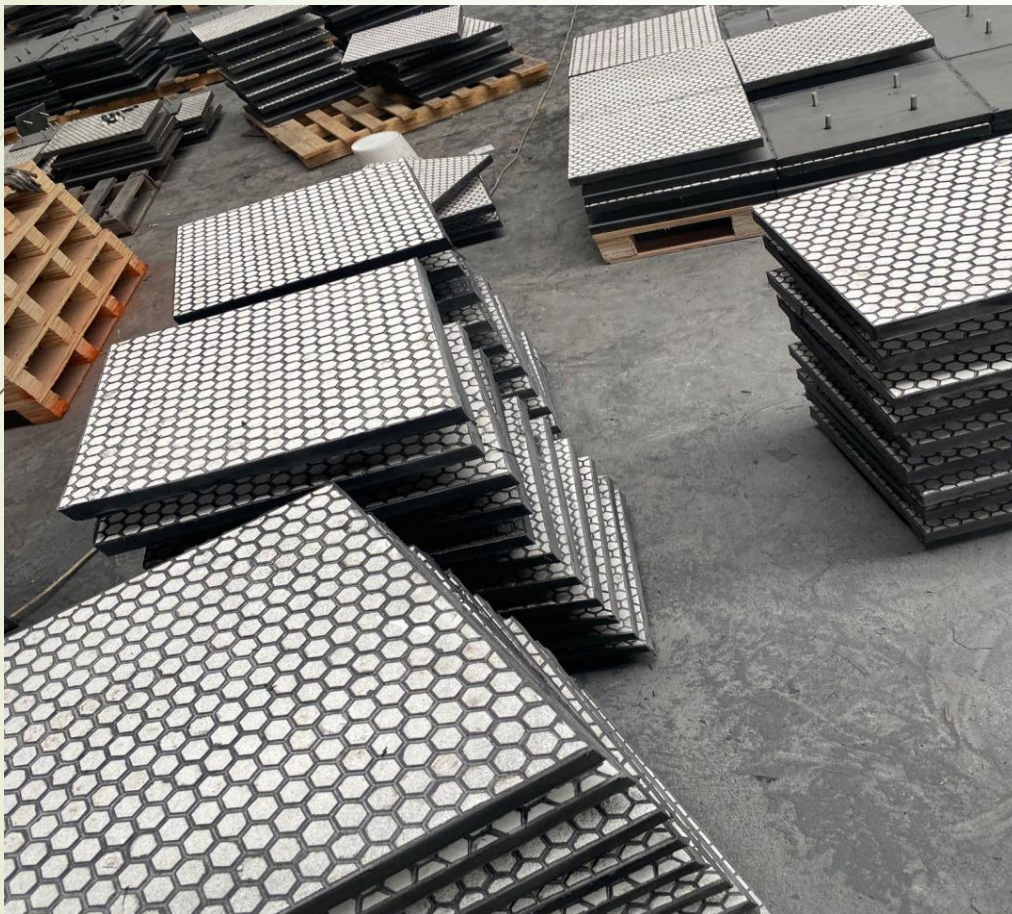
Impact panels is excellent for application of high impact and extreme wear. The alumina provides a very smooth surface for material flow and actually reduces its resistance to friction with service life. The elastomer backing also helps to reduce vibration and noise levels within the plant and is engineered to resist the size and type of impact experienced for each individual project.

The Impact wear plates use rubber as the bonding agent. The rubber is pressed around and between the alumina tiles and steel backing plate. The process of high pressure, heat and a superior bonding agent. This ensures removal of the alumina from the plate is virtually impossible.

Although standard panels are available, individual projects can be engineered by HUAO fully trained and experienced field engineers

The alumina can be laid out with staggered or aligned joints. Both tiles and cylinders can be used of different sizes and shapes.

Mosaic tiles



Detail information/index

规格 Spec	长度 (L)	宽度 (W)	厚度 (H)
方形 Square Shape	10--24	10--24	3--20
六边形 Hexagon Shape	12--20	12--20	3--15

It is widely used for all types machines with high wear resistance damaged such as thermal power, steel, Smelt, machine, mine, coal, chemical, cement industry for transport, milling, ash discharging system. It is high purity, high wear resistance, impact resistance, corrosion resistance and precise dimension.

CYCLONE AND LINER

- We can design and produce the liner of cyclones, pipe, bends, chute, pasting service according to the customer's requirement. We are removing the worry of the clients with one-step service. Cyclone, pipe, bend, square to round liner can be designed and manufactured, including: 92% and 95% alumina liner, silicon carbide liner, etc.



Alumina ceramic tubes



Detail information/index

Item/Product	92 series
AL2O3 (%)	≥ 92
Fe2O3 (%)	≤ 0.2
Mohs Hardness	≥ 9
Water Absorption(%)	≤ 0.02
Bulk Density(g/cm ³)	≥ 3.60



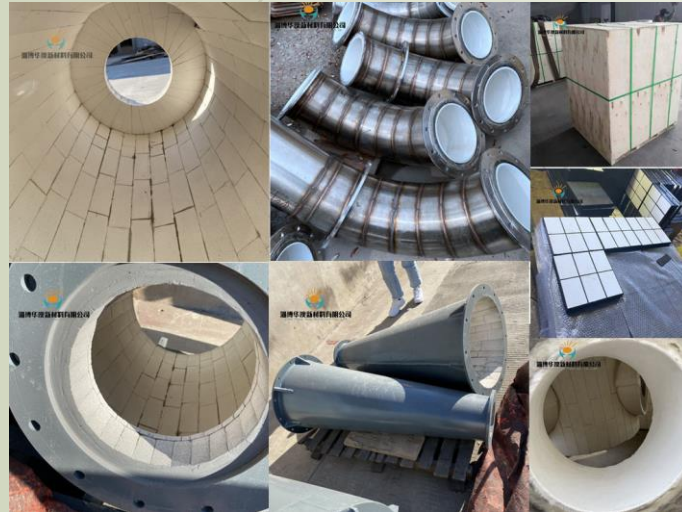
INSPECTION

Provide: photos, inspect documents, video

Package



Customers project/order





Grinding Media

- ▶ Alumina ceramic grinding balls
- ▶ Inert packing balls
- ▶ Alumina ceramic balls for cement
- ▶ Zirconia alumina balls

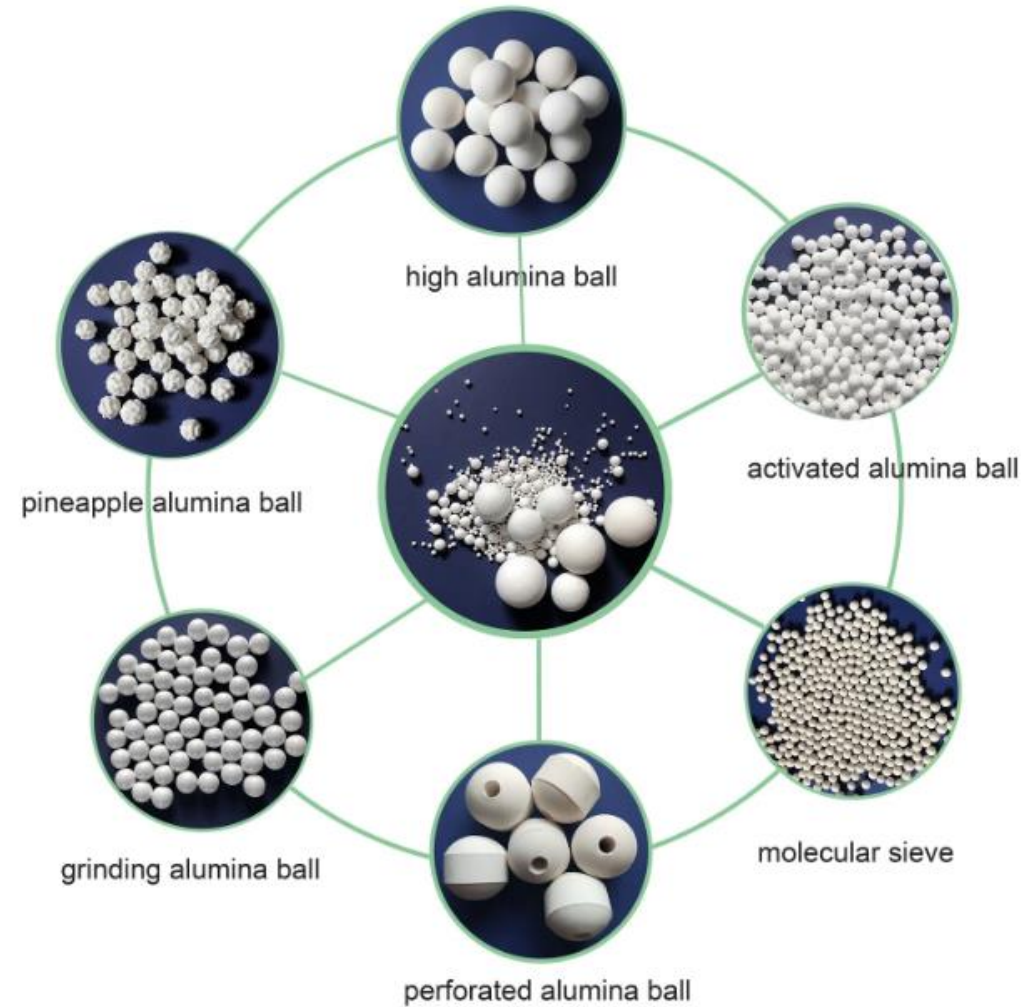
1. Alumina Ceramic ball

➤ Description:

- High alumina ceramic balls are mainly divided into: high-purity inert packing balls and grinding balls

➤ Feature:

- High-purity inert packing balls are widely used in petroleum, chemical, fertilizer, natural gas and environmental protection industries. They are used as covering support materials for catalysts in reactors and tower packing.
- Grinding balls are grinding bodies used for fine grinding equipment such as ball mills, pot mills, vibratory mills and so on. It can also be subdivided into two types: wet grinding and dry grinding



Technical specification

Grinding ball (Wet Grinding)

Brand	HA-92	HA-92S	HA-95
Al ₂ O ₃ (%)	≥92	≥92	≥95
Bulk Density (g/cm ³)	≥3.65	≥3.68	≥3.68
Hardness (Mohs)	9	9	9
Wear Loss (%)	≤0.01	≤0.008	≤0.01
Water Absorption (%)	≤0.01	≤0.01	≤0.01
Color	White	White	White

Grinding ball (Dry Grinding)

Brand	HA-92	HA-95
Al2O3 (%)	≥92	≥95
Bulk Density (g/cm3)	≥3.60	≥3.65
Hardness (Mohs)	9	9
Wear Loss (%)	<0.015	<0.012
Water Absorption (%)	<0.01	<0.01
Color	White	White
Size	13-90mm	
Size can be customized according to customer's requirement.		

2. Inert Packing balls

Brand	HA-92	HA-95	HA-99	HA-99.5
Al ₂ O ₃ (%)	≥92	≥95	≥99	≥99.5
Fe ₂ O ₃ (%)	≤0.2	≤0.15	≤0.1	≤0.05
Bulk Density (g/cm ³)	≥3.20	≥3.40	≥3.50	≥3.60
Packing Density (g/cm ³)	1.80	1.85	2.00	2.10
Unit Compressive Strength (13mm/N)	≥5000	≥5500	≥6000	≥7000
Water Absorption (%)	≤5	≤5	≤5	≤5
Color	White	White	White	White
Noted: Water Absorption can be customized according to customer's requirement.				

3. Alumina ceramic balls for cement

- Technical data

- Our alumina ceramic ball is made of α alumina (α -aluminium oxide, the most thermodynamically stable form) by cool isostatic pressing or rolling, then fired at a very high temperature in the tunnel kiln. It is an ideal grinding media.

Materials	Density(g/cm3)	Bulk weight(kg/cm3)	Moh's hardness	Crushing rate (%)	Abrasion loss(g/kg.h)
Alumina grinding media	3.6-3.8	2200-2300	9	<1-3	0.09
High chromium steel ball	7.6-7.8	4500	6.8	<1-3	0.18

Brand	HA-92	HA-95
Al2O3 (%)	≥92	≥95
Bulk Density (g/cm3)	≥3.60	≥3.65
Hardness (Mohs)	9	9
Wear Loss (%)	<0.015	<0.012
Water Absorption (%)	<0.01	<0.01
Color	White	White
Size	13-90mm	
Size can be customized according to customer's requirement.		



Advantage of alumina ceramic beads than other materials beads for cement

- Save power
- Reducing the mill loading 20%
- Saving power above 15% per ton cement
- Improve quality
- Improve the grinding efficiency
- Improve the performance of cement
- Rationalize the grains distribution more better
- Increase 2% of the grain 3-32 μm
- Improve the spheroidization efficiency
- Decrease 1-2% water in same standard consistency
- Adapt the concrete admixture for cement well
- Reduce current
- The current of mill mainframe is reduced by more than 20%
- Cooling and noise reduction
- The temperature could be down more above 20%
- Good effect of noise reduction
- Excellent abrasion
- The abrasion loss of alumina grinding media for cement mill is about a half of steel ball
- Protect environment
- Using of alumina grinding ball could protect environment effectively.



4. Zirconia Alumina Balls

- Mainly used in calcium carbonate, kaolin, zircon sand, pigments, dyes, graphite, coatings, metal mining industries used as grinding and dispersion media. The beads can also be used for shot peening polishing and other metal surface treatment. According to the customer's different grinding equipment, we can match different density grinding beads.
- **Properties**
- Good roundness, high sphericity, the surface has excellent gloss. The product is compact in sintering and has no defects such as porosity and so on.
- Excellent toughness, higher crushing strength than ordinary alumina beads, non-fragmentation in long-term high-speed operation.
- Good stability, acid and alkali resistance.
- Low equipment attrition.

Data sheet of ZTA balls

	ZTA280	ZTA320	ZTA370	ZTA380	ZTA450	ZTA470
Al ₂ O ₃ (%)	≥57	≥70	≥87	≥66	≥5	≥3
ZrO ₂ (%)	≥5	≥5	≥5	≥18	≥62	≥70
SiO ₂ (%)	≤30	≤20	≤5	≤12	≤30	≤24
Bulk density(g/cm ³)	≥2.80	≥3.15	≥3.70	≥3.78	≥4.48	≥4.60
HV Hardness (GPa)	≥7	≥8	≥12.5	≥11	≥10	≥10
Crushing Strength(N)	≥250 (ø1.5-2)	≥800 (ø3.5)	≥1000 (ø3)	≥12000 (ø8)	≥1200 (ø3)	≥1300 (ø3)
Water absorption	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Wear loss rate(g/kg.h)	≤1.5	≤1.5	≤1.5	≤1.5	≤1.5	≤1.5
Sphericity	≥95%	≥95%	≥95%	≥95%	≥95%	≥95%

ø 0.2-0.4mm	ø 0.4-0.6mm	ø 0.6-0.8mm	ø 0.8-1.0mm	ø 1.0-1.2mm
ø 1.2-1.4mm	ø 1.4-1.6mm	ø 1.5-2.0mm	ø 2.0-2.5mm	ø 2.5-3.0mm
ø 3.0-3.5mm	ø 4mm	ø 5mm	ø 8mm	ø 10mm

Standard Dimension

Remarks: Other granularity can be customized according to customers' request.

➤ Photos of alumina ceramic ball series





Package

THANK YOU

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