



PINGXIANG CHEMSHUN CERAMICS CO.,LTD.

WEAR RESISTANT ALUMINA CERAMICS
GRINDING CERAMICS
SILICON CARBIDE CERAMICS
SEMICONDUCTOR CERAMICS



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PINGXIANG • CHINA



Founded in 2002 year, Pingxiang Chemshun Ceramics Co., Ltd. (Brief as CHEMSHUN) is a professional manufacturer of wear resistant ceramic liners, ceramic grinding media and wear protection solution. CHEMSHUN is certificated by ISO9001, ISO14001 and ISO45001. CHEMSHUN's major raw material alumina powder is imported from Australia and France. 60% products are exported to South America, South Africa, Australia, Souther-East of Asia.

CHEMSHUN service industries including: mining, thermal power plant, cement factory, steel plant, port and chemical industries, etc.

Bringing wealth of material life and soul for employee, "To be the forerunner in the advanced ceramics field" is CHEMSHUN's aim. Cooperation with CHEMSHUN, we will bring and increase value to you.



Company Culture

» Vision

To be the forerunner in the advanced ceramics field.

» Mission

To provide customers with high-quality products and services to meet their needs;
To provide employees with a development platform to realize their own value;
To assume social responsibility, win widespread recognition and respect from society.

» Core Values

Integrity, Innovation, Sharing, Growth, and Happiness.

» Quality Policy

People-oriented and scientific management;
Process quality control, sustaining improvement of quality;
Provide satisfied products to customer continuously.

» Environmental Policy

Protect the environment, prevent pollution;
Use resources efficiently for sustainable growth.

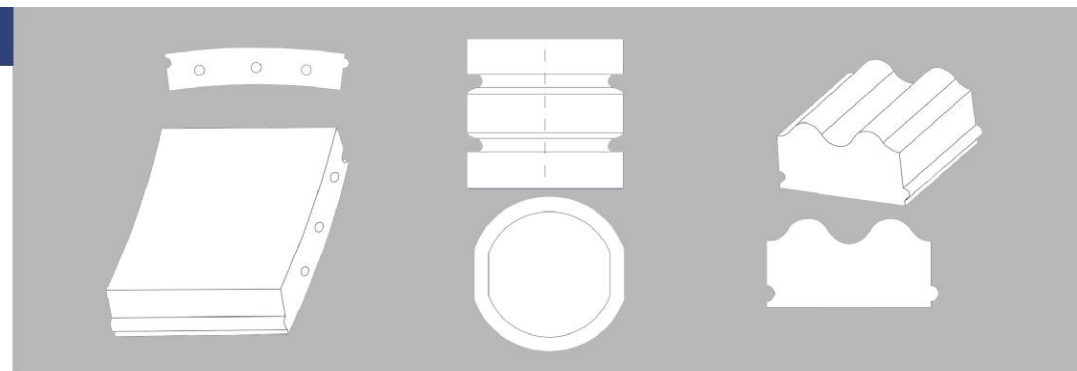
» Occupational Health and Safety Policy

Comply with legal and regulatory requirements, create a safe & positive work environment;
Prevent workplace accidents and continuous improve management.



Company Honor

- Member Of China Silicate Association
- National High-Tech Enterprise
- The National Special New "Little Giant" Enterprise
- Committee Of The Structural Ceramics Sub Technical Committee Of The National Industrial Ceramics Standards And Technical Committee
- The National Technology-Based Smes (Small And Medium-Size Enterprise)
- Jiangxi Province "Little Giant" Enterprise
- Jiangxi Provincial Enterprise Technology Center
- Jiangxi Province Specialized, Fined, Peculiar And Innovative Enterprise
- Pingxiang Executive Director Unit Of The Association For Foreign Trade And Economic Cooperation
- Pingxiang Poverty Alleviation And Caring Enterprises
- Ceramic Powder Material Preparation Engineering Technology Research Center In Pingxiang
- Pingxiang Title Of Excellent Enterprise
- Pingxiang Military Civilian Integration Enterprises
- Pingxiang Technology Innovation Demonstration Enterprise And Major Taxpayer
- ISO9001:2015 Quality Management System Certificate
- ISO14001:2015 Environment Management Certificate
- ISO45001:2018 Occupational Health and Safety Management Systems Certificate



We always focus on the demand of our customers, continuously research and provide the cost-effective products and solutions. Meanwhile, we also invest a large amount of funds to research and innovate products and improve the technical.

We now have obtained 31 patents, and will keep the products upgrading to bring more value to customers.





Laboratory

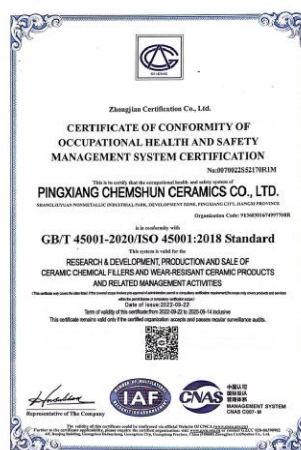
Complete testing machine

Certificates

ISO9001:2015

ISO14001:2015

ISO45001:2018



Wear Resistant Alumina Ceramics

Wear resistant alumina ceramic is one of CHEMESHUN's major product series, it is mainly used in minings, steel plants, thermal power plants, ports, cement and other industries to protect the surface of equipment such as bunker, bin, hopper, chute, feeding, conveyors, pipes, etc. to away abrasion and extend the service life of the equipments, and meanwhile to help client to reduce the downtime and cost.

CHEMESHUN's ceramic advantages

- 1 Excellent abrasion resistance;
- 2 Good anti-impact performance;
- 3 Excellent hardness;
- 4 Excellent corrosion resistance;
- 5 Excellent heat resistance (up to 1500°C);
- 6 Easily and quickly installation;
- 7 Smooth surface can reduce barrage and friction coefficient to prolong the device working life;
- 8 Low density can reduce the lined equipment weight and improve the equipment working effectiveness.

- Alumina Ceramic Lining Tiles
ceramic plain tile, weldable tile, pipe tile, and curved tile, etc.
- Alumina Ceramic Lining Pieces
ceramic cylinder, mosaic tile, hexagonal tile, ceramic block, ceramic cube, etc.
- Alumina Ceramic Tube, Bend and Elbow
- Rubber Ceramic Wear Composite
rubber ceramic wear plate, ceramic rubber lagging and ceramic hose

Technical Datas

Properties	Unit	CS 92I	CS 92II	CS 95	CS 99	CS ZTA
Al ₂ O ₃	%	92.0	92.0	95.0	99.0	75.0-80.0
ZrO ₂	%	-	-	-	-	20.0-25.0
Density	g/cm ³	3.60	3.60	3.65	3.88	4.20
Water Absorption	%	≤0.01	≤0.01	≤0.01	≤0.05	≤0.01
Flexural Strength	Mpa	270	300	320	350	350
Moh's Hardness	Grade	9	9	9	9	9
Rockwell Hardness	HRA	80	85	87	88	90
Vickers Hardness (HV10)	Kg/mm ²	1000	1150	1200	1500	1300
Fracture Toughness	Mpa.M ^{1/2}	3-4	3-4	3-4	4-5	5
Thermal Expansion Coefficient (25-1000°C)	1x10 ⁻⁶ /°C	8.0	7.6	8.1	8.2	-
Maximum Operation Temperature	°C	1450	1450	1500	1600	1600



■ Alumina Ceramic Lining Tiles

Due to the selection of high-quality raw materials, advanced production processes, and strict quality control, CHEMSHUN's wear resistance ceramic lining tiles can effectively protect your equipment / machine against wear, wherever abrasive materials are mined, transported, processed, especially in the industries of mining, primary steel, fire power plant, cement, port etc. CHEMSHUN's lining tiles help user reduce their downtime and improve their productivity.

CHEMSHUN could afford customers the optimum lining tiles accommodate the detailed equipment wear protection demand. This adapts all the lining tiles totally meet the application. CHEMSHUN's ceramic lining tiles including: plain tile, weldable tile, trapezoidal tile, curved & lock tiles, and engineering tile with special geometries.



Ceramic tile lined chute
Ceramic tile lined hopper
Ceramic tile lined pipe



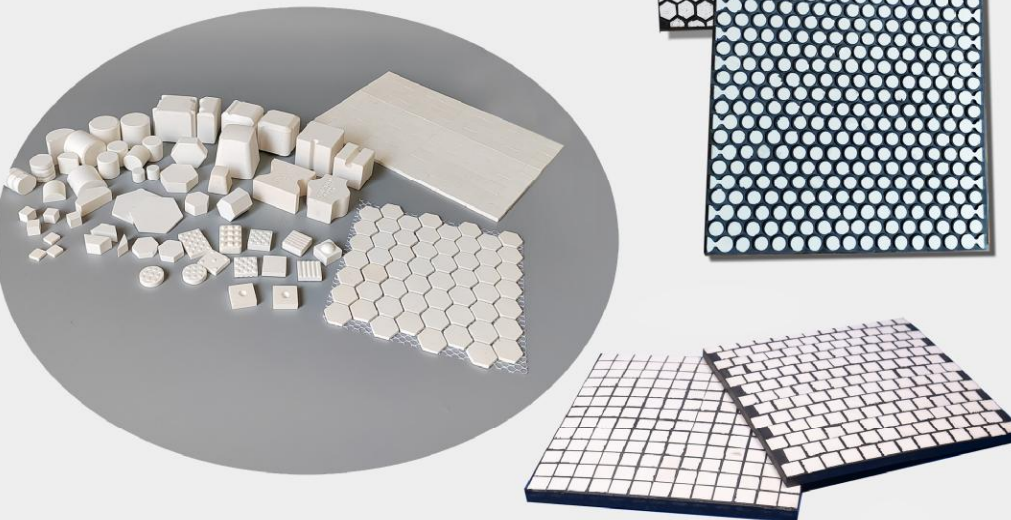
Ceramic pre-engineered tile lined cyclone





■ Alumina Ceramic Lining Pieces

CHEMSHUN's ceramic lining pieces include the ceramic cylinder, ceramic mosaic tile, hexagonal tile, dimple tile, L-shape tile, tile mesh, tile mat and other ceramic cube and ceramic block, etc. According to the application, they can be used as wear protection material directly or could be vulcanized with rubber and then make a new compound wear resistance liner as rubber ceramic plate which has the anti-impact performance and is easier to finish the installation.



Customer has more choices based on actual application demand and costing benefiting by the variety of product shapes and dimensions.



Mosaic tile lined elbow

Hexagonal tile mesh lined pipe
L-shape tile lined end of tube
Dimple tile lined rubber lagging





■ Alumina Ceramic Tube, Bend and Elbow

The alumina ceramic tube, bend and elbow have exceptional hardness and strength, resistance to wear and chemical attack. It's especially used as the lining of the pipeline and can protect the steel pipe for excessive wear and extend the use life. This kind of ceramic pipe is easy for installation and diameter can be varied from 10mm to 500mm. the shape can be straight tube, bend tube and Y-piece.

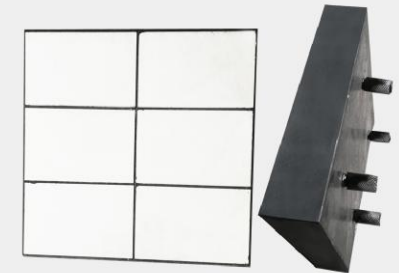
With the properties of smooth surface, no gap and good abrasion and impact resistant ability, the ceramic tube and bend are widely used in the pipeline of conveying ore fines, cement, coal and other big hard material in cement, steel, chemical, mining milling, smelting, port, thermal power plant.



■ Rubber Ceramic Wear Composite

The rubber ceramic wear composite is with high wear resistant ceramics vulcanized within resilient rubber. The ceramics provide excellent resistance to wear, while the elasticity of rubber effectively dampens impact forces. This combination well solved the problem of the wear and impact areas.

The **series I** is rubber ceramic wear plate, the excellent performance of wear resistant and anti-impact makes it is widely used in mining industry, such as lining large bunker, hopper, etc.



The **series II** ceramic hose is one of good ideal conveyor which is widely used in highly aggressive environments for wear resistance and anti-impact. Embedding the high alumina ceramics into the rubber, the ceramic hose could bear the hard materials of pipe friction stead of rubber. It's widely used in dredging, mining, port field, etc.



Grinding Ceramics

Ceramic Grinding Media

CHEMSHUN's ceramic grinding series include ceramic grinding ball, ceramic grinding cylinder and lining bricks. The products in this series are widely used in ball mill, pot mill, etc in sanitaryware field, cement factory, ceramic floor tile plant, coating, paint, ink and other nonferrous metal factory, etc.



Technical Datas

Properties	Unit	CS 92	CS 95	CS60	CS60G	CS60B
Al ₂ O ₃	%	92.0	95.0	-	-	-
SiO ₂						
ZrO ₂	%	-	-	94.8	83.0-87.0	85.0-88.0
Y ₂ O ₃	%	-	-	5.2	-	-
CeO ₂	%	-	-	-	9.0-13.0	9.0-13.0
Density	g/cm ³	4	3.65	5.95-6.0	6.1	6.1
Moh's Hardness	Grade	9	9	9	8	8
Self Abrasion Loss (24Hours, wet grinding)	%	<0.01	<0.01	-	-	-
Self-abrasion	ppm/h	-	-	<0.5	<0.8	<1.0
Size Range of Ball	mm	20-60	6-30	0.1-10	0.1-6.0	0.4-3.5
Size Range of Cylinder	mm	21x21, 31x31	6-40	-	-	-
Color	-	White	White	White	Yellow	Black
Brick Dimension	mm	Rectangular brick: 150x50/60/70x50 Half-rectangular brick: 75x50/60/70x50 Ladder brick: 150x50/60/70x45 Half-ladder brick: 75x50/60/70x45 Thin brick: 75x50/60/70x50/45	-	-	-	-
Application	-	Glaze/body material in ceramic floor/wall factory, sanitaryware, pigment, metallurgy, glass, chemicals and other fields, etc. (wet grinding only)		Coating, paint, ink etc.		

Ceramic Grinding Media for Mining Industry

CHEMSHUN's ceramic grinding media for mining is small size ceramic balls or ceramic beads, used in high intensity stirred mills for fine and ultra fine grinding. The ceramic grinding media with different composition and size, and good feature of high impact resistance, the property of inert and no pollution, the media can replace the traditional steel and chrome steel grinding media for applications where downstream processes are sensitive to surface chemistry and also could avoid the generation of slimes which are combined with those traditional media's angular shape and high wear rates.

Technical Datas

Item	Main Composition	Diameter Range (mm)	Density (g/cm ³)	Color	Vickers Hardness (kgf/mm ²)	Application Suggestion
CS-26	Al ₂ O ₃ : 45~60% SiO ₂ : 34~45%	0.5~20	2.60~2.80	White	≥700	It's suitable for the stirred mill such as Metso's SMD and fine milling process of soft materials with low slurry density.
CS-32	Al ₂ O ₃ : 80~90% ZrO ₂ : 10~15%	0.5~20	3.20~3.30	White	≥900	It's suitable for the stirred mill such as Metso's SMD and milling the hard minerals.
CS-36	Al ₂ O ₃ : >90%	0.4~25	3.50~3.65	White	≥1100	It's suitable for the Nano-size material grinding.
CS-37	Al ₂ O ₃ : >95%	0.5~30	3.65~3.75	White	≥1200	It is suitable for hard minerals, high density slurry of minerals.
CS-38	Al ₂ O ₃ : 88~90% ZrO ₂ : 3~5%	0.5~15	3.80~3.85	White	≥1300	It's suitable for the application in stirred vertical mills and horizontal mills such as Mesto's SMD, Glecore Isamill, FLSmidth's VXP mill or Outotec HIGMILL.
CS-40	ZrO ₂ : 55~65% SiO ₂ : 30~35%	0.5~10	4.00~4.20	White	≥1100	It's suitable for the high linear velocity conditions. Example, vertical and horizontal stirred mill, such as Outotec's HIGMILL, Glencore's Isa mill, FLSmidth's VXP mill. It can grind the high density slurry of minerals.

Remark: CS-26, CS-32, CS-36, CS-37, CS-38, CS-40 are suitable for the industries of:

1. Metallic minerals: copper, silver, nickel, Zinc
2. Non-metallic minerals: Kaolin clay, Calcium carbonate, Zirconium Silicate .

Package :

1. 1000kg/jumbo bag.
2. 25kg/bag, small bags put into jumbo bag.
3. CS-52, CS-60, CS-62 by plastic drums, then drums fasten on pallet.



Silicon Carbide Ceramics

CHEMSHUN Has another major material SiC ceramics which are also welcomed to be widely used in mining industry, sintering kiln, machinery fields, etc.

There are three types:
SiSiC (RBSiC), SSiC and RSiC.

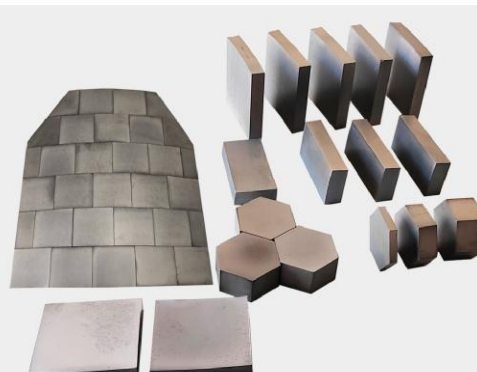
Technical Datas

Item	Unit	SiSiC	SSiC	RSiC
SiC	Vol%	≥85.0	≥99.0	≥99.0
Bulk density	g/cm ³	3.01	3.10-3.15	2.60~2.72
Apparent porosity	%	<0.1	<0.2	15.0
Modulus of rupture at 20°C	Mpa	250	400	80~90
Modulus of rupture at 1200°C	Mpa	280	650	90~100
Modulus of elasticity at 20°C	Gpa	330	410	-
Thermal Conductivity at 1200°C	w.m ⁻¹ .k ⁻¹	45	55	35
Thermal expansion at 1200°C	a×10 ⁻⁶ /°C	4.5	4.0	4.6
Thermal shock resistance at 1200°C	-	Very good	Very good	Very good
Max.working temperature	°C	1380	1600	1650(oxid)



SiSiC Ceramics Reaction Sintered Silicon Carbide

SiSiC (RBSiC) is made by infiltrating compacts made of mixtures of SiC and carbon with liquid silicon. With the outstanding chemical and physical characteristics of silicon carbide, its good wear resistance and excellent thermal characteristics provide the viable solutions to many industries to solve difficulty such as wear, impact, corrosion, thermal, etc. The RBSiC (SiSiC) are widely served for kiln fields, mining industries, thermal power industry and hydrocyclone, etc.



SSiC Ceramics Sintered Silicon Carbide

Sintered silicon carbide ceramic (SSiC) is produced with very fine SiC powder containing sintering additives. It is processed using forming methods typical for the other ceramics and sintered above 2000°C in an inert gas atmosphere. It is almost completely dense. Meanwhile, with the smooth surface and excellent thermal characteristics, the SSiC ceramic components have replaced conventional materials in many seal rings, bearing and armor materials, etc.

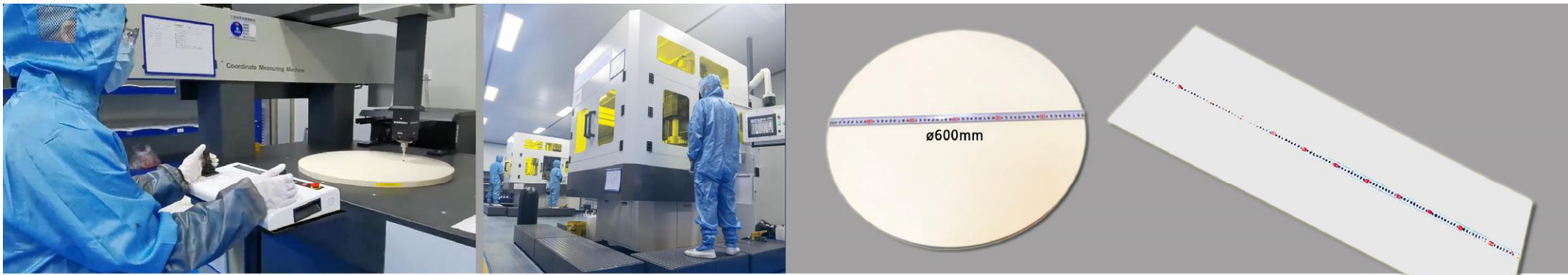


RSiC Ceramics Recrystallized Silicon Carbide

Recrystallized silicon carbide ceramic is called R-Sic ceramic. This advanced engineered ceramic is comprised of more than 99% SiC and it is consolidated at temperature above 2000°C. This intensity thermal processing causes the sublimation of finer silicon carbide particles and the condensation of the SiC grains.

Recrystallized silicon carbide ceramic has benefits of outstanding thermal stability, thermal shock resistance, high temperature resistance and corrosion resisting. So, it is widely used as components of kiln furniture and electronic component.





Semiconductor Ceramics (PIBM)

The core technology (PIBM Spontaneous Solidification Technology), originated from SICCAS and obtained the invention patent in 2011. With the supports of Shanghai Science and Technology Talent Plan, General Program of National Natural Science Foundation of China and Key Research Plan of Ministry of Science and Technology, it has been successively developed from laboratory tech to pilot tech in Shanghai and Pinghu (Zhejiang) Technological Center with the cost of RMB 50 million in the past decade.

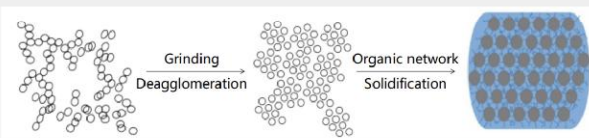
Now CHEMSHUN has the key core material ceramic grinding disc with independent intellectual property rights to apply and solve the bottleneck in the top-end development industry chain of semiconductor wafers.

PIBM Spontaneous Solidification Technology is the most advanced technology in the manufacture of top-end alumina products, which can be used to produce a variety of new materials for different high-end market needs.

At present, this technology can be used in the mass production and supply of ceramic grinding disc in semiconductor, petroleum, chemical, photovoltaic, LED and other industries.

Fundamental Theory (PIBM)

- Powder deagglomeration;
- Meeting the rheological requirements of slurry (high solid content, low viscosity and high stability);
- Three-dimensional organic network is formed by polymerization reaction between organic molecules in ceramic slurry, and the ceramic particles are fixed to form a wet blank with uniform structure;



Technical Datas

Property	Unit	PIBM series
Al ₂ O ₃	%	99.7
Density	g/cm ³	3.97
Vickers hardness	Gpa	17
Three-point bending strength	Mpa	520

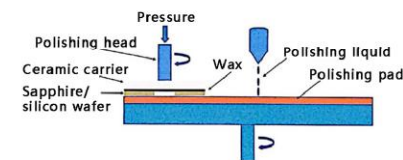
- High density, high hardness - improve wear resistant performance, can meet the user's demand.
- High strength - excellent thermal shock resistance

PIBM Production Processing



Application

As an important component of CMP chemical mechanical polishing process. CMP is the necessary for producing process of the sapphire and wafer.



Dimension

Disc, ring: diameter less than 850mm and thickness less than 45mm.
For example: ø150mm, ø360mm, ø600mm.
Customized products with various size are accepted.

