Min&Pro

Attrition - resistant material for Your industry

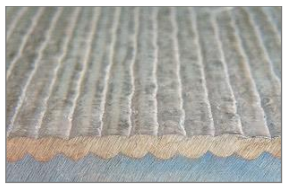



CGM® –Ceramic Grinding Media

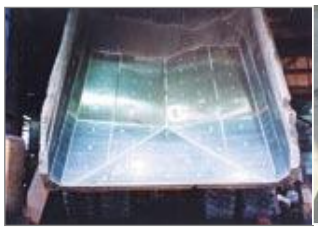
Engineering solution for Your industry

Min&Pro

Chromium Carbide Wear Plates -CC® are made of more than 50% Chromium Carbide steel(Cr_7C_3). Perfect impact and abrasion resistance of the material allow to use it widely in the mining industry, minerals processing and metallurgical engineering.

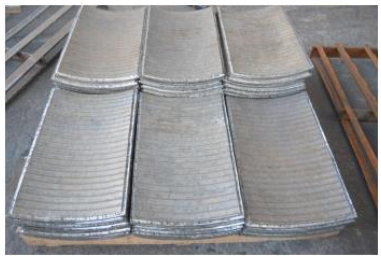


Usage



- Lining of carbody mining trucks
- Lining of the bunkers, gutters, charging chutes and mechanical interfaces
- Lining of pipe connections

Specification:



- Rockwell hardness number HRC 58 ~ 65
- Thickness of plates from 4 to 40 mm
- Dimension: 1400x3000 mm, 1400x3500 mm, 2100x3500 mmby employer's dimension
- Manufacturing of the triangle and other forms
- Clamping by applying bolting and welting

Privileges:

Compared with the abrasion-resistant steel it has:

- Higher durability (greater term)
- The reduction in expenses for fuel realization of remedial maintenance
- The increase of operating factor, equipment availability and consequently machine capacity

LLP «Min&Pro» (Minerals and Processing)
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CGM® –Ceramic Grinding Media

Engineering solution for Your industry

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Ceramic Grinding Media CGM® *constitutes rounds and cylinder arrangements which are made of ceramic with high aluminic oxide possessing high abrasion resistance.*
Producibility of regulating oxide zirconium and yttrium rounds.

Usage

- In the tube mills of cement sector
- In the bead mills for grinding concentrates and middling products with the number of grinding mill's revolutions less than 60% from the critical point (cascade mode of work)
- In the grinding mills of ultra - fine grinding

Specification

- Diameter of rounds from 0,2 to 55 mm
- Relative density from 3,2 to 6 SGU
- Moh's hardness 8-9

Article / Characteristics	*CGM97*	*CZGM4*	*CZGM3,2*	*ZGM*
Chemistry	Al_2O_3; Fe_2O_3	Al2O3; ZrO2; SiO_2; др.	Al2O3; ZrO2; SiO_2; др.	ZrO_2; Y_2O_3
Ratio	≥97; ≤0,1			95; 5
Specific weight, SGU	≥3,7	>4	>3,2	>6
Moh's hardness	9	8	8	9
Diameter, mm	3÷55	0,4÷13	0,2÷12	0,2÷20

Privileges:

In compare with steel balls it has:

- Expansibility of grinding mills filling with rounds (due to less specific weight of ceramic) and consequently falling of grinding coarseness
- Reduction in expenses for fuel of rounds' using (50%) – due to ceramic's lower price
- Impoverishment of metal in cement (especially Cr using steel balls with high content of chrome)
- Level recession of energy consumption (25%)
- Noise abatement
- Falling of temperature in the grinding mill

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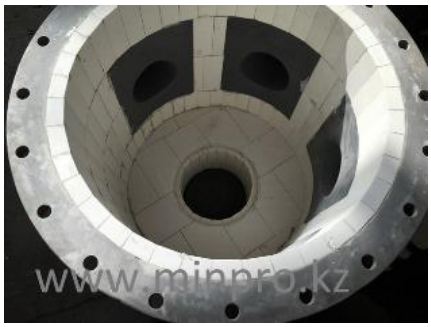
MCP® – Metal Ceramic Piping

Engineering solution for Your industry

Metal Ceramic Piping MCP® *possess superb durable qualities. Ceramics with high alumni oxide,locating in pipe connections, provides to use it widely during the piping of high abrasive slurries and chemical solutions to prevent them from excessive wear and corrosion.*

Usage

- Pipe connections of high abrasive slurries and aggressive solutions
- Lining of the metal pipe connections, bends and bell cranks
- Hydrocyclone lining
- Insuring and draining checker fillings to the hydrocyclones



Specification

- The thickness of steel pipe from 4 to 8 mm
- The thickness of liner from 3 to 50 mm
- Diameter of pipe connections from 50 to 800 mm, by employer's dimension
- Producibility of bell cranks and other forms

Privileges

- High durability, wearing qualities in 260 times over than manganese steel and 170 times over than high- chromium steel
- High tenacity of aluminic oxide to electrochemical corrosion
- Availability of flanges allows to reduce quick installation/disassembling of pipe connections
- The specific weight of ceramics 3,6 SGU is 50% of the steel's solidity that is far easier than steel pipes
- Low stage of the aluminic oxide adhesion's allows to degrade frictional force in pipe connections,that allows to use diameter's pipe connection (less than 15%) in comparison with the metal connections

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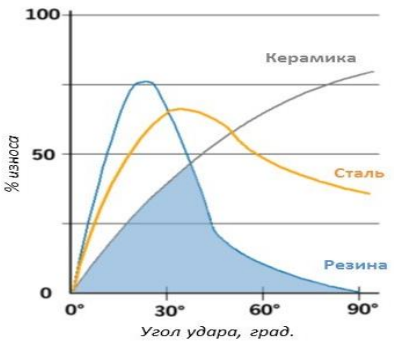
RCL® – Rubber Ceramic Lining

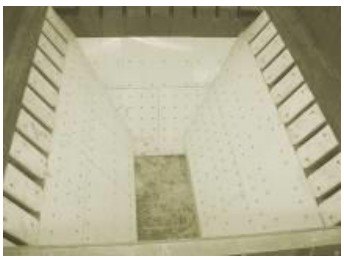
Engineering solution for Your industry

Rubber Ceramic Lining *RCL®* *specifically developed for surface protection of wearing process. Due to remarkable low stage of wearing process it widely regards one of the top feedstock for using.Due to rubber adsorbing bottom layer, the noise content while using is the lowest, and dwarflike adsorption coefficient of water prevents work material's adhering to its face.*



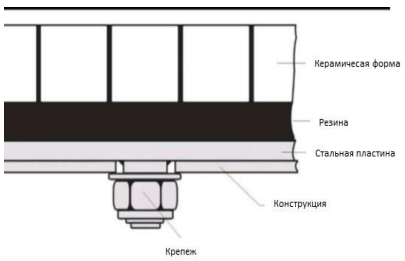
Usage

- Lining of bunkers, conduits, charging chutes and mechanical interfaces
- Lining of metal and rubber pipe connections
- Insuring and draining checker fillings to the hydrocyclones



Specification

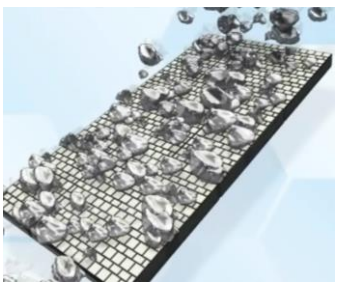
- Lining thickness from 30 mm to 120 mm
- Dimension 500x500 mm, 250x500 mm by employer's dimension
- Manufacturing of triangle and other forms
- Clamping by applying bolting and welting



Article / *Specification*	*RCL92*	*RCL95*	*RCL97*
Al_2O_3 (%)	≥ 92	≥ 95	≥ 97
Moh's hardness	9	9	9
Level of water adsorption(%)	≤0,01	≤0,01	≤0,01
Specific weight (SGU)	≥ 3,63	≥ 3,68	≥ 3,73

Specification

- Lining thickness from 30 mm to 120 mm
- Dimension 500x500 mm, 250x500 mm by employer's dimension
- Manufacturing of triangle and other forms
- Clamping by applying bolting and welting



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RCP® – Rubber Ceramic Piping

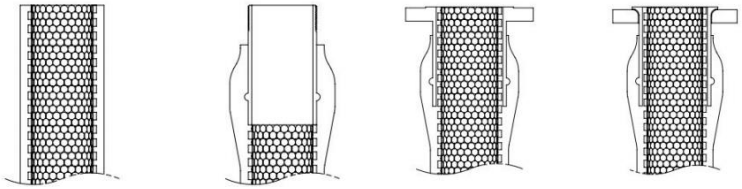
Engineering solution for Your industry

Min&Pro

Rubber Ceramic Pipings***RCP®*** *are optimum for using instead of rubber armor-clad transfer tubes for transferring of high abrasive slurries. Also this given type of pipe connections can be used for mobile equipments' accessing and the exclusion of mechanical vibration's transmission.*

Specification

- Diameters of pipe connections from 1 to 12 inches (according to specification)
- Full pressure 150 atm.
- Temperature is not exceeding 120^0C
- Different options of shoring



Handy dimensions of pipe connections

Dimensions (inches)	*Inner content ø (inches)*	*Outer content ø (inches)*	Minimum bending radius, *cm*
1	1,00	1,65	51
1,25	1,25	1,97	64
1,5	1,50	2,20	76
2	2,00	2,83	102
2,5	2,67	3,70	137
3	3,00	4,13	152
3,5	3,27	4,72	163
4	4,00	5,51	203
6	6,00	7,48	305
8	7,64	9,25	389
10	9,65	11,42	490
12	11,77	13,78	597

Privileges

- High tenacity to consumption and attack by corrosion
- Ease flexibility of pipe connections
- Easy and quick installation
- Different options of shorings

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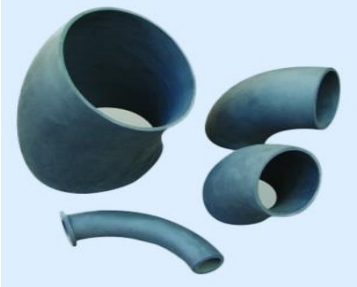
SC® - Silicon Carbide

Engineering solution for Your industry

Min&Pro

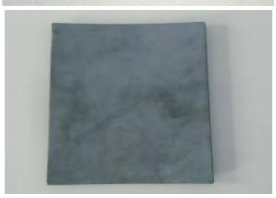
Silicon carbide *SC®* *(SSiC/SiSiC) keeps virtually the same natures as diamond.It is not only the easiest but the hardest ceramic material and also it keeps great heat conductor, low thermal-expansion coefficient and extremely high frequency immunity to acid and alkali attacks.*



There are some modifications of the silicon-carbide ceramic - SSiC (sinterized silicon carbide) and SiSiC (silicon- infiltrated silicium carbide) - which prove great in many spheres of industry.

Usage

- Lining bunkers, conduits, charging chutes and mechanical interfaces
- Lining of metal, pipe connections, bends and bell cranks
- Insuring and draining checker fillings to the hydrocyclones and hydrocyclone linings
- Compression of pump lining and other equipping
- Atomizer cones and wall-fired burners
- Refectory lining



Article / *Specification*	*SiSiC (Reaction Bonded Silicon Carbide)*	*SSiC (Sintered Silicon Carbide)*
Operating temperature, ^{0}C	1380	1600
Relative density, SGU	>3,02	>3,1
Elasticity modulus, hPa	400	400
Sponginess, %	<0,1	<0,1
Hardness index	10	10
Immunity to acids/alkali	superb	superb

Privileges/demerits

In comparison with ceramic lining

- Higher wearing capacity (over than 5 times)and crashworthiness
- Usage over hotter temperature
- High cost (in 8-10 times)

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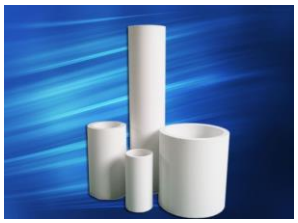
WRCC® – Wear resistant ceramic cylinder

Technical solutions for your production

Min&Pro

Wear Resistant Ceramic Cylinders WRCC® *are ideal for lining steel pipes, elbows, tees, designed for the transport of highly abrasive slurries, cement, coal and other solid materials. Compared to the aluminum oxide ceramic tile installation costs are much cheaper and much higher durability, because of fewer joints.*




Specification

Available Dimensions

Inner ø (mm)	*Outer ø (mm)*	Thickness (mm)
25	10	7/5
30	15	7.5
40	20	10
50	37	6.5
65	52	6.5
80	67	6.5
100	84	8
125	109	8
150	134	8
200	184	8
250	230	10

Product / *Specification*	*WRCC 92®*	*WRCC 95®*
Al_2O_3 (%)	≥ 92	≥ 95
Fe_2O_3 Content (%)	≤0.2	≤0.15
Hardness (Mohs)	9	9
Water Absorption (%)	≤0.02	≤0.02
Specific gravity (g/l)	≥ 3.60	≥ 3.65

Key Benefits

- ❖ High wear and corrosion resistance in acid and alkaline solutions
- ❖ The smooth surface prevents the sticking of transported material, due to the low coefficient of friction
- ❖ High life time, increasing the time between repairs, low labor costs
- ❖ High resistance to elevated temperatures of transported material up to 800°C

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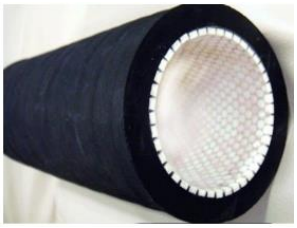
Wear products WP® *becoming more commons in deverse fields of trade as versus compatibles possess variety of advantages:*

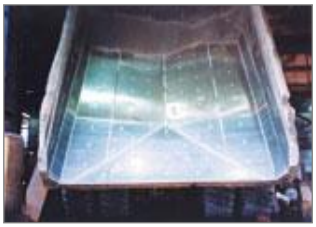
- *high tenacity to excessive wear and attack*
- *environmental safety*
- *ease of installation/disassembling*
- *commonly used*
- *low maintenance charges*
- *magnifying of interrepair time and thus increase in productivity*

For selection of the optimal product for Your trade ask You to fill in basic configuration data sheet and send it by email, fax or mail according enumerated contact information.

Configuration data sheet (Basic)

№№	***Information***	
1.	Company profile	
	Company name	
	City	
	Webpage	
2.	Information about the contact	
	Surname, given name,patronomyc	
	Title position	
	E-mail address	
	Business phone number	
	Mobile phone number	
3.	General information	
	Interested product	
	Plan place of using	
	Material capability	
	Partition size of gratis, mm	
	Relative density, SGU	
	Abrasiveness (low-middle-high)	
	Temperature, ^{0}C (for pulps and dilutions)	
	Acidity pH (for pulps and dilutions)	



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