



Tangshan SnDou SiC Ceramics Co.,Ltd  
(R-SiC, N-SiC, Si-SiC)

Tangshan SnDou SiC Ceramics Co.,Ltd  
Add: Technical & Economic Developing Area, Fengnan District,  
Tangshan City,China. (P.C 063300).  
Cell / Wechat /Whatsapp: +86-199 3292 2868  
E-mail: SNDOU-SiC@QQ.COM  
URL: WWW.SNDOU-SiC.COM



## ABOUT US

SnDou SiC Ceramics Co.,Ltd located in north China ceramics manufacturing base - Tangshan City. We specially research and develop SiC advanced ceramics with 10+ years experience. materials by R-SiC (recrystallized Silicon Carbide), N-SiC (Nitride Bonded Silicon Carbide, and Si-SiC (Sintered Silicon Carbide). products covering: beam, plate, burner nozzle, roller, thermocouple sheath, riser tube,heater protection tube , furnace tube, cooling air pipe, radiation tube, crucible and special-shaped parts.

SnDou' s ceramics is made by advanced tech - slip casting. By this way, we can get averaged density, better size stability and kinds of special-shaped parts. moreover, machining process also available, like: grinding, drilling, thread, groove-cutting etc.

and alumina coating & ceramic bonding is also supported! By our experienced technical team, now SnDou already become a shining star which can offer full chains services in China SiC industrial ceramics field. With good service, we are wining more and more customers' approval, now servicing at China, Korea, Japan, Italy, Malaysia, Poland, Russia, Mexico, Serbia, India etc.

Offering customer "Highest Cost-Effective Solution " is our working style, anyone any help on SiC ADVANCED ceramics, please feel free to contact us, SnDou is ready to welcome you anytime!



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### Recrystallized Silicon Carbide (R-SiC / ReSiC)

This ceramic is made from high-purity green SiC fine & coarse grains which burned under 2450°C, get a compact SiC matrix after firing. Its characteristics as follow:

- ◆ High loading capacity, good dimension stability
- ◆ High purity, good corrosion resistance
- ◆ High thermal shock resistance
- ◆ Max working temperature is 1650°C(oxide)

#### Application:

- ◆ High temperature ceramic kiln furniture
- ◆ High temperature structural parts
- ◆ Other high temperature function parts

#### Materials Technical Data

Items	Unit	Data
Bulk density	g/cm <sup>3</sup>	2.72
Apparent porosity	%	≤17
Compression strength	Mpa	500-700
Bending strength ( 4points )	MPa (at 20°C) 90, MPa (at 1200°C) 120	
Young' s modulus	GPa(at 20 °C)	250
Thermal conductivity	W/M <sup>2</sup> K <sup>-1</sup>	23
Thermal expansion	10 <sup>-6</sup> K <sup>-1</sup>	4.7
Max working temperature	°C	1650 (oxide)
SiC content	%	99.5
Molding way		Slip casting

### RSiC Beam



RSiC beam as kiln furniture widely used for loading structure systems of tunnel kilns, shuttle kilns and other industrial kilns. Higher strength & no deformation even in 1650-1700°C working temperature, also display longer life and excellent thermal conductivity make it save energy with less weight of the kiln car. applied following industries:

- ◆ AL<sub>2</sub>O<sub>3</sub> & Zr<sub>2</sub>O<sub>3</sub> ceramics
- ◆ ITO & Magnetic materials
- ◆ High temp fiber products
- ◆ Electrical porcelain
- ◆ Sanitary wares & daily porcelain
- ◆ Cordierite Mullite refractory & ceramics...

### R-SiC Plate



R-SiC loading plate has higher bearing capacity with small thickness. Higher bending strength & thermal conductivity, also no deformation & good oxidation resistance under 1650-1700°C, mainly as kiln furniture for kiln furnace in the industry of:

- ◆ ITO target
- ◆ AL<sub>2</sub>O<sub>3</sub> & Zr<sub>2</sub>O<sub>3</sub> ceramics
- ◆ Ceramic foam filters
- ◆ Daily-used ceramics
- ◆ High pressure insulation ceramics
- ◆ Construction sanitary porcelain...

### Re-SiC Burner Nozzle



Re-SiC burner nozzle has excellent oxidation resistance & longer using life under 1650°C, no impurities appear (No-pollution on firing products) under super high temperature, it's an ideal kiln furniture as flame tubes in high temp fields.

To fit: Tunnel kilns, shuttle kilns, roller hearth kilns...

### RSiC Tube



RSiC tubes including "Roller" "Furnace tube" & "Thermocouple Protection tube", With higher bending strength and no deformation under long term working temp 1650°C, RSiC life is much more than AL<sub>2</sub>O<sub>3</sub> tubes.

Widely used for :

- ◆ Magnetic Materials
- ◆ High-temp kiln furnace
- ◆ Household porcelains, sanitary ware
- ◆ measuring temp system in metallurgy & chemical industry...

### Re-SiC Sagger(Crucible)



Re-SiC saggars have excellent properties of high temp+high strength+oxidization resistance +corrosion resistance, as ideal kiln furniture of industrial kilns, widely used for :

- ◆ Metallurgy
- ◆ Chemicals
- ◆ Powder sintering
- ◆ Microwave heating...

### ReSiC Special-Shaped Parts



ReSiC special shaped parts as structural parts has higher strength, high hardness and good chemical stability. It can be widely applied for:

- ◆ Chemical
- ◆ Metallurgy
- ◆ Mineral separation
- ◆ Environment protection
- ◆ Scientific research experiment...

### Nitride Bonded Silicon Carbide (NSiC / Si<sub>3</sub>N<sub>4</sub>-SiC)

NSiC ceramics is made from high pure SiC & Si powder, and sintered by nitriding reaction. NSiC has many more engineering properties than usual refractory materials at 1450°C, such as: excellent corrosion resistance of molten metal or chemicals, higher strength, excellent thermal shock & thermal conductivity, longer life etc.

#### Application:

- ◆ Metallurgy(AL, Zn, Cu..) industry
- ◆ Ceramic industry
- ◆ Chemical industry

#### Materials Technical Data

Items	Unit	Data
Bulk density	g/cm <sup>3</sup>	2.65-2.8
Apparent porosity	%	12-15
Compression strength	Mpa	500-700
Bending strength	Mpa	150-180
Young's modulus	Gpa	200-250
Thermal conductivity	W/M <sup>-1</sup> K <sup>-1</sup>	15
Thermal expansion (20-1000 °C)	10 <sup>-6</sup> K <sup>-1</sup>	5.0
Max working temperature	°C	1450
Si <sub>3</sub> N <sub>4</sub> content	%	20-30
SiC content	%	70-80
Molding way		Slip casting

### NSiC Protection Tube



NSiC material has very excellent resistance of molten metal corrosion, as thermal couple protection tube in temperature measuring system, or electrical heating protection tubes in metallurgy process, which can directly touch with the liquid-metal, high strength & longer life.

Widely used on:

- ◆ Metal industry AL, Zn, Cu, Pb, Sn...
- ◆ Chemical industries.

### Si3N4-SiC Beam & Batt



High strength Si3N4-SiC beams & batts with good resistance of oxidation at 1450°C, act as kiln furniture for daily-used ceramic, sanitary wares & electrical porcelains etc.

### N-SiC Riser Tube

N-SiC riser tube is mainly for low-pressure die casting industry, thermal shock resistance, creep resistance, acid&alkali resistance, anti-oxidation, and perfect resistance of liquid-metal corrosion, no Fe material added for improving metal products quality. Mainly applied for :

- ◆ Car Aluminum-wheel making
- ◆ Metal industry AL, Zn, Cu, Pb, Sn...



### NSiC Crucible & Special-Shaped Parts

By excellent performance on high working temperature, resistance of metal, NSiC crucibles & Special-shaped parts is widely used on Non-ferrous metallurgy, chemicals, structural parts, corrosion parts and other function spares....



### Reaction Bonded Silicon Infiltrated SiC (RBSiC / Si-SiC)

This two-phase material is made from silicon carbide+metallic silicon(8-15%). Si-SiC max working temp is 1380°C, it has high strength and excellent hardness, wear + corrosion resistance, oxidation resistance and thermal shock resistance...

#### Application:

- ◆ Highly-stressed kiln furniture(rollers, supports, beams etc)
- ◆ Burner components for direct & indirect burning(flame tubes, radiant tubes)
- ◆ Heating elements due to its electrical characteristics
- ◆ Mechanical engineering fields requiring high wear and corrosion resistance

#### Materials Technical Data

Items	Unit	Data
Max Working Temperature	℃	1380℃
Bulk Density	g/cm <sup>3</sup>	> 3.02
Apparent Porosity	%	< 0.1
Bending strength	Mpa	250 (20℃)
	MPa	280 (1200℃)
Elasticity modulus	GPa	330 (20℃)
	GPa	300 (1200℃)
Thermal conductivity	W/m.k	45 (1200℃)
Coefficient thermal expansion	K <sup>-1</sup> × 10 <sup>-4</sup>	4.5
Moh' s hardness		13

### Si-SiC Cross Beam



Si-SiC (RBSiC) beams is a loading structure parts for kinds of kilns, high strength and no deformation under 1380°C, it' is an ideal kiln furnitures for:

- ◆ Daily-used ceramics
- ◆ Sanitary wares
- ◆ Electrical porcelains etc.

### Si-SiC Roller & Cooling Air Pipe

Si-SiC (RBSiC) rollers is a key kilns furniture for roller hearth kilns, high bearing strength and no deformation, working life is more 10 times than Alumina roller.

Used for:

- ◆ Household porcelains
- ◆ Sanitary wares
- ◆ Building ceramics
- ◆ Magnetic materials etc.



### Si-SiC Burner Nozzle



Si-SiC (RBSiC) burner nozzles is working as flame tubes in combustion system, an ideal kiln furniture for tunnel kiln, shuttle kiln, roller hearth kiln etc.

### Si-SiC Desulphurization Spray Nozzle

Si-SiC (RBSiC) desulphurization spray nozzles is a key part of the exhaust gas treatment system, desulfurization & dedusting by it, for environment protection purpose.  
Widely used for: thermal power plants & large boilers.



### Si-SiC Protection Tube & Furnace Tube



Si-SiC (RBSiC) thermal couple protection tubes is used in measuring control system, while special atmosphere furnace tubes is used in atmosphere sintering furnace or other industrial furnaces.

To fit:  
Metallurgy, Chemical, Ceramic... industry.

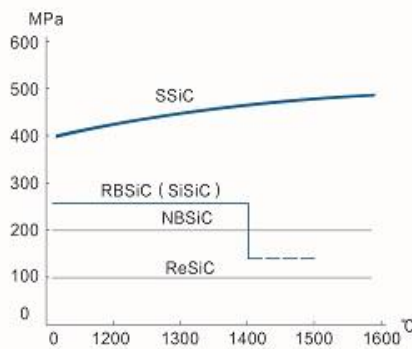
### Liner & Wear Resistance Parts



The slip-casting SiSiC special shaped parts has been successfully used on following fields:

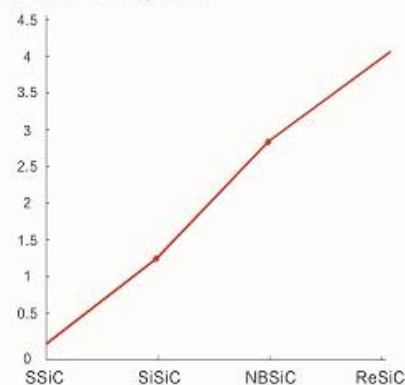
- Chemical industry
- Automobile industry
- Food & medical industry
- High corrosion & wear materials transport
- Machinery and sealing
- Metallurgy & paper industry

### 4 Point Bending Strength



### Oxidation Resistance

Weight gain (%) = 1100°C, O<sub>2</sub> 1500h



### Applications

Ceramic Industry	Kiln furniture
Chemical Industry	Linings, Fittings
Environmental Engineering	Nozzles, Filters
Mechanical Industry	Machinery parts, Seals, Sleeves
Power Engineering	Burner nozzles, Heat exchangers
Metallurgy Industry	Riser tubes, Protection tubes, saggars
Electronic Industry	Production equipment spares

### Precaution to the user

- ◆ Fragile, handle with care;
- ◆ Keep dry, dry & preheat it before using;
- ◆ Avoid heating or cooling in a short time;
- ◆ Make AL<sub>2</sub>O<sub>3</sub> coating if necessary;
- ◆ The kiln parts should be aligned when building.

For further info and advice, please feel free to contact us. Our design is available upon request.