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## Silicon Carbide Nano Powders

TEM of SiC nanopowder



### Specification

This product is synthesized by plasma arc vapor method.

No.	Index	Index Value
1	Appearance	Green powder
2	Purity	> 99.0%
3	Average grain size	<50nm
4	Specific Surface Area	>90 m <sup>2</sup> /g
5	Dissociate silicon content	< 0.20%
6	Oxygen content	< 0.61%
7	Crystallographic form	Cubic
8	Apparent density	0.05g/cm <sup>3</sup>
9	True density	3.22 g/cm <sup>3</sup>
10	Morphology	nearly spherical

**Advantages:**

- High purity
- Small and uniform particle diameters
- Large specific surface area
- High surface activity
- Low loose loading density

The structure devices, made by using this nano SiC powder, have high hardness, high wear resistance and good self-greasing effect, high thermal conductivity, low thermal expansion efficient and high temperature strength etc. SiC also is one kind of semiconductors with good properties. Both chemical stability and anticorrosion of SiC are excellent. It can be used to treat the metal surfaces, and make treated metal devices having high anticorrosion, high wear resistance, anti-high temperature and good absorption property.

**Applications****1. Structure devices**

For example, in metallurgy, chemical industry, mechanical industry, aeronautics and space industry and energy source fields etc, SiC can be used to make slide bearings, liquid fuel jets, crucibles, moulds used at high frequencies and large powder, and devices of semiconductors etc.

**2. Surface treatments of metal and other materials** For example, tools, moulds, anti-high temperature coatings, thermal emission coating, anti-corrosive coatings and absorption wave coatings etc.

**3. Composites** SiC can be used to prepare composites of metal matrixes, ceramic matrixes and polymer matrixes.

**4. Potential Applications of SiC Nanopowders**

Catalyst support

Nanocomposites (e.g., Si<sub>3</sub>N<sub>4</sub>/SiC, SiC/polymer)

Resistance heating elements

Strengthening materials for Al, Al<sub>2</sub>O<sub>3</sub>, Mg, and Ni

Superplasticity

Wall in future nuclear fusion reactors

Wear resistant parts

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