

Silicon Carbide

Description

The only compound of carbon and silicon, SiC has been produced for more than 100 years. Typically, oxide-bonded SiC protection tubes are about 90% silicon carbide, 8-9% silicon dioxide and minor amounts of alumina and iron oxide. Porosity can be about 14%.

Advantages

- ✓ Resistant to:
 - Direct flames
 - Most corrosive liquids, including acids, alkali and molten salts up to 800°C
- ✓ Non-wetting by molten aluminum
- ✓ Excellent thermal shock characteristics

Limitations

- ✓ Not gas tight – requires inner alumina protection tube for platinum thermocouples

Maximum exposure temperature

2730° F (1500°C)

Thermal Conductivity

High (120 W/m•°K at room temperature)

Typical applications

- ✓ Heat exchangers
- ✓ Furnaces and kilns
- ✓ Molten aluminum, brass, bronze, lead and tin
- ✓ Smelting
- ✓ Incinerators
- ✓ Steel soaking pits, galvanizing and pickling operations