



PureSic[®] Silicon Carbide
Semiconductor



PureSiC® CVD Silicon Carbide for Semiconductor Manufacturing

Specifically Developed for Silicon Wafer Processing

High-purity, full-density PureSiC CVD silicon carbide was specifically developed to meet the demanding standards of silicon wafer processing.

- Ultra-pure material – With a purity greater than 99.9995% and no porosity, PureSiC CVD silicon carbide helps maintain the cleanliness of the semiconductor manufacturing processes
- Low thermal mass – A critical design parameter, the high strength and stiffness of PureSiC CVD silicon carbide allow the use of thin, lightweight components
- Thermal shock resistance – RTP processes benefit from the high thermal shock resistance of PureSiC CVD silicon carbide, helping to improve ramp rates and component life
- Near-net shape capabilities – Help enable in the fabrication of intricate geometries
- Withstands cleaning processes – Highly resistant to concentrated HF/HNO₃ wet cleans and high-temperature in-situ etching with gaseous HCl
- High and low transmissivity grades – For applications where optical or infrared transmissivity is critical
- High, Mid, and Low-resistivity grades for applications requiring specific electrical resistivity. Other resistivity grades available by request. Tight resistivity process control and in-house measurement.
- Uniform microstructure throughout – Proprietary deposition processes produce a single-coat epitaxial microstructure providing customers with uniform material throughout.

Specify PureSiC CVD silicon carbide for RTP, epi, etch, implant, and other critical processes.

Ultra-Clean Manufacturing Processes

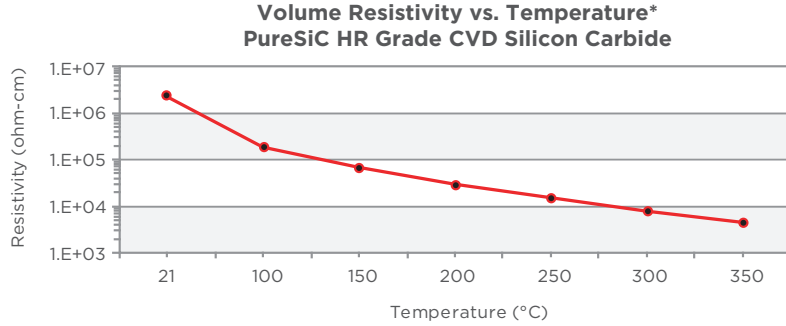
With purity greater than 99.9995%, PureSiC CVD silicon carbide has the cleanliness for advanced semiconductor manufacturing and other ultra-clean processes.

- Ultra-high-purity feed gases employed in chemical vapor deposition (CVD) process
- Precision machining capabilities – Expertise in machining to provide a material that minimizes particle generation in demanding semiconductor applications.
- Full-density CVD SiC reduces the particles or cleaning solutions that can be trapped in porous materials
- Critical trace elements are maintained at levels well below one ppm in bulk

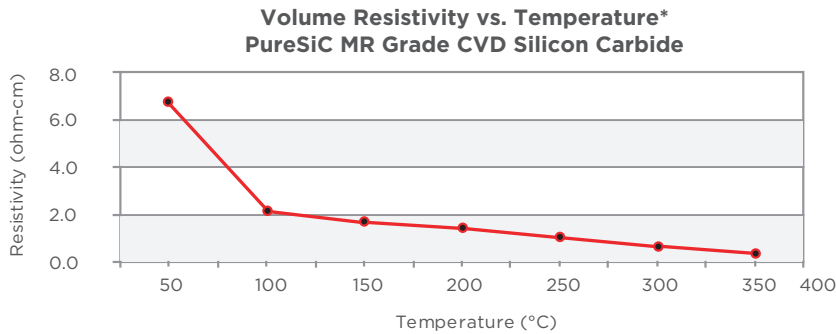


Controlled Electrical Resistivity Applications

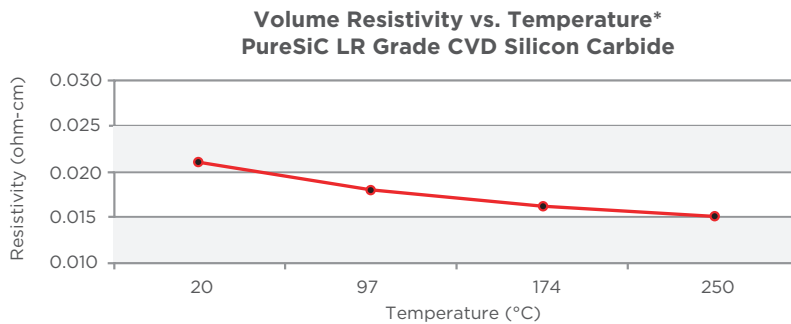
PureSiC[®] CVD silicon carbide is offered in HR, MR, and LR grades for applications where high, mid-range, or low electrical resistivity is required. CoorsTek offers custom-tuned material resistivity to match customer requirements. Combining controlled resistivity with ultra-high purity and superior corrosion resistance, PureSiC CVD silicon carbide is an ideal material for use in plasma etch, ion implant, and static-dissipative processes.



High-resistivity (HR) grade PureSiC HR grade has a resistivity greater than 10⁶ ohm-cm at room temperature.



Mid-range Resistivity (MR) PureSiC silicon carbide - Example resistivity data. CoorsTek also offers tightly controlled custom resistivity components.

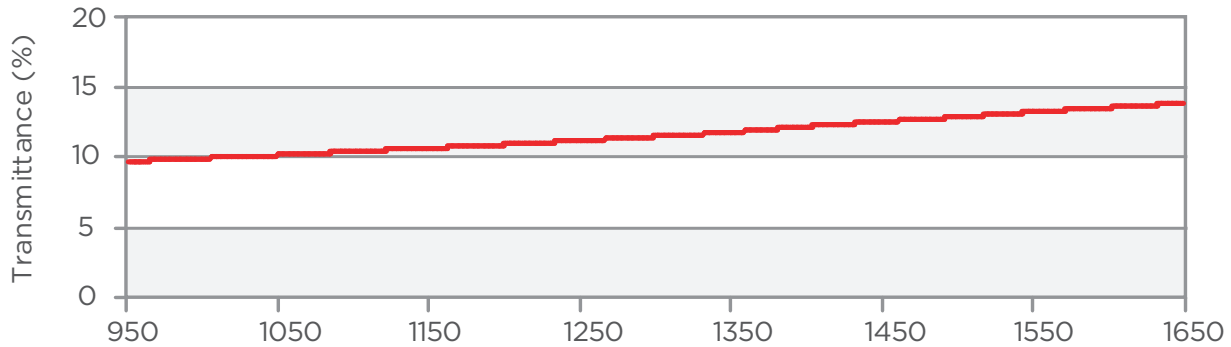


Low-resistivity (LR) grade PureSiC CVD Silicon Carbide has a resistivity of less than 0.1 ohm-cm. Custom grades are available for other resistivity requirements - contact our materials experts for more information.

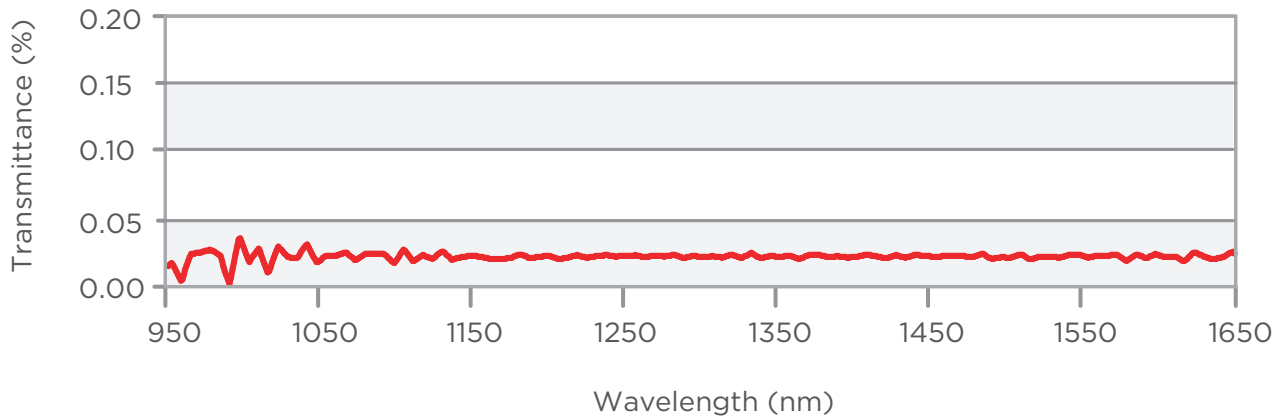
Controlled Optical Transmissivity Applications

PureSiC® CVD silicon carbide is offered in the standard translucent HR grade and in low-transmissivity LR grade for applications requiring an opaque silicon carbide. Our in-house optical testing capabilities help to ensure PureSiC CVD silicon carbide meets your optical requirements.

Transmittance vs. Wavelength* PureSiC HR Grade CVD Silicon Carbide - 0.016" Thick



Transmittance vs. Wavelength* PureSiC LR Grade CVD Silicon Carbide - 0.016" Thick



Sensor Applications

Specify PureSiC LR grade CVD silicon carbide for applications where motion sensors or optical temperature sensors require a low-transmissivity material. Our LR grade is also available in thin-wall protective sheaths – for quick response thermocouples and optical temperature sensors.

Materials and Manufacturing Experts

CoorsTek is uniquely capable of providing advanced solutions in CVD silicon carbide and other technical ceramic, metal, and plastic materials using state-of-the-art manufacturing technologies. Our in-house materials testing lab is one of the premier testing laboratories in the industry. Let our team help you select the best materials and design for manufacturability. For expert engineering and design assistance, contact us.

The chart is intended to illustrate typical properties. Property values vary with method of manufacture, size, and shape of part. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek assumes legal responsibility. OpX is a trademark of CoorsTek, Inc. CoorsTek and PureSiC are registered trademarks of CoorsTek, Inc.



Americas
+1 303 271 7100 tel
+1 855 929 7100 toll free in USA
coorstek.com
info@coorstek.com

Europe
+49 160 530 3768
infoeurope@coorstek.com

Japan
+1 81 3 5437 8411
japaninfo@coorstek.com

China
+86 21 6232 1125
info_shanghai@coorstek.com

Korea
+82 31 613 2946
koreainfo@coorstek.com