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Advanced Technical Ceramic Solutions



CeramaSil-C *Silicon Carbide*

Within the current range of technical ceramics available from Precision Ceramics are two of the hardest materials known to man. Only surpassed by diamond itself, Boron Carbide and Silicon Carbide have, over the years, earned the distinguished title of 'Super Hard Ceramics'.

Like both oxides and nitrides, silicon carbide is a very hard wearing material which requires diamond-grinding methods to process once fired. Although not exclusively, carbides are used mainly for applications in which physical wear is a major consideration.

Also known as carborundum, silicon carbide powder has been mass-produced since 1893 for use as an abrasive. For use as a super hard ceramic, grains of silicon carbide are bonded together and sintered at high temperature to form solid structural pieces.

The technical properties of silicon carbide are remarkably similar to those of diamond. It is one of the lightest, hardest and strongest technical ceramic materials and has exceptional thermal conductivity, chemical resistance and low thermal expansion.

Silicon carbide is an excellent material to use when physical wear is an important consideration because it provides good erosion and abrasive resistance making it particularly suitable for such applications as spray nozzles, shot blast nozzles and cyclone components.

Key Properties

- Corrosion resistant
- Extremely high hardness
- High chemical and thermal resistance
- High thermal conductivity
- High Young's modulus
- Lightweight – low density
- Low coefficient of thermal expansion
- Outstanding thermal shock resistance
- Refractive index greater than a diamond
- Wear resistant

Applications

- Blast nozzles
- Burners
- Heat exchangers
- Kiln furniture crucibles
- Mechanical seals
- Plungers
- Seal rings (water ring pumps)
- Sliding bearings
- Valve seats
- Wear parts (thread guides)

PRECISION CERAMICS

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The new McLaren P1 is probably the most advanced and jaw-dropping car the world has ever seen. The brake discs are coated with silicon carbide, one of the 'Super Hard Ceramics' available from Precision Ceramics.

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