

SiTech Advanced Ceramic

HMA Ceramatech SiTech Advanced Ceramic is a siliconised silicon carbide ceramic. It has an extremely fine, nil porosity grain structure and does not exhibit a lower hardness matrix. The matrix is of a similar hardness to the main ceramic particles, thus providing an extremely hard wearing surface.

Dimensional accuracy can be achieved to high engineering tolerances. All machining and shaping is done in the 'green' state prior to reacting and there are no dimensional changes during or after reacting, enabling complex shapes to be made accurately.

- HMA Ceramatech SiTech is ideally suitable for any application where severe sliding abrasion occurs either at ambient or elevated temperatures, up to 1400° Celsius
- Any application where resistance to thermal shock is a problem



Extremely high hardness for extended wear life of components.

Advantages of HMA Ceramatech SiTech

- Tight manufacturing tolerances can be achieved as all machining and shaping is done in the 'green' state
- Excellent resistance to temperature changes and thermal shocks
- Corrosion resistant
- High hardness allowing for the extended wear life of components
- High temperature conductivity
- No dimensional changes occur during manufacturing process



Typical Uses of HMA Ceramatech SiTech

- Pulverised fuel piping
- Cyclones including Cyclone feed chambers, spigots and vortex finders, and complete cyclones
- Burner nozzles
- Kiln furniture
- Mill parts
- Pump and valve parts
- Furnace entry rollers
- Slurry and pneumatic pipe lines
- Orifice plates
- Specialised shapes



PHYSICAL PROPERTIES Siliconised Silicon Carbide

Item	Unit	Data
Temperature of application	–	≤1380
Density	g/cm ³	≤3.02
Open Porosity	%	≤0.1
Bending Strength	MPa	250_20_
		280_1200_
Modulus of elasticity	GPa	330_20_
		300_1200_
Thermal conductivity	W/m.K	45_1200_
Coefficient of thermal expansion	K-1*10-6	4.5
Rigidity		>13
Specific Heat	J/kgk	600 (RT)
		1200 (1300_)
Modulus of rupture	MPa	250 (1250_)

SiTech Chemical Analysis Report Data	
Items	Content ≤1380
SiC	78%
(Si_	21% ≤ 0.1
Others	1%

The process in which SiTech is formed gives a fine grained, dense, nil porosity structure, with high strength and extremely good abrasion resistance in either hot or cold conditions. The high thermal conductivity makes it extremely resistant to thermal shock and spalling and it can be made in simple or complex shapes.

Dimensional accuracy can be achieved to accepted engineering tolerances. All machining etc is done in “the green” state prior to reacting. There are no dimensional changes during or after reacting, enabling complex shapes to be made accurately.

Applications:

Any application where severe sliding abrasion occurs either at ambient or elevated temperatures, up to 1400oC.

Any application where resistance to thermal shock is a problem.

Typically : Burner tubes and rubber inserts or deflectors mill parts (liners, chutes etc). Nozzles subject to wear. Pump parts, furnace entry rollers and Kiln furniture or rails.