Ceramics and Metal Matrix Composites

CERAGUARD®

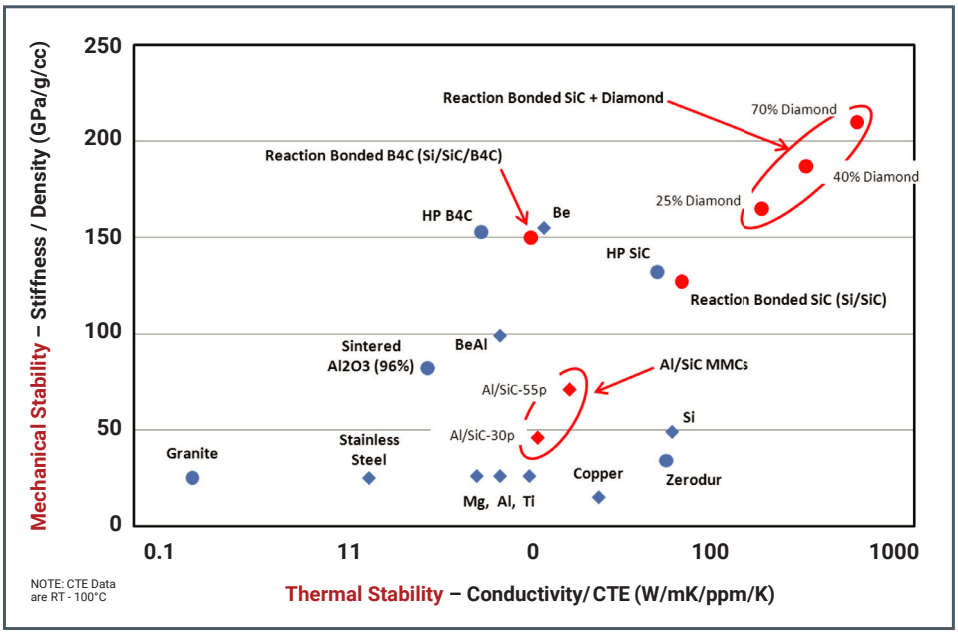
Performance ceramics for today's most demanding industrial applications

Broad Portfolio of Patented Technology

THERMADITE®	SiSiC + Diamond for applications requiring ultimate thermal and mechanical stability
COGENTUM®	Next generation Aluminum MMC's, the clear choice for advanced machine design
MESA®	Intelligent flatness control when working with advanced materials
OPTIMUM®	Directly polishable silicon carbide for mirror applications

COHERENT

Large size capability(meter class) | Complex features | Tailorable properties



Complex Structures

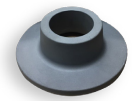
Monolithic Structures with Internal Channels

Advanced materials provide excellent wear resistance and dimensional stability across wide temperature ranges.

Property		SSC-702	SSC-802	SSC-902	SSC-852S	SSC-FG	HSC-702	TSC-15	RBBC-751	THERMA-DITE® NZ
		(SiSiC) 70% SiC	(SiSiC) 80% SiC	(SiSiC) 90% SiC	(SiSiC) 88% SiC	(Fine-Grained SiSiC)	(SiSiC + Al)	(SiSiC + Ti)	(B4C+ SiSiC)	(SiSiC + Diamond)
Density	g/cc (ρ)	2.95	3.00	3.12	3.07	2.94	3.01	3.13	2.56	3.40
Possion's Ratio		0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.18	0.14
Young's Modulus	GPa [E]	350	380	410	392	330	330	390	400	700
CTE avg 20–100°C	(ppm/K) [α]	2.9	2.9	2.7	2.8	3.0	4.4	3.0	4.8	1.4
Thermal Conductivity	(W/m-K) [k]	170	180	190	185	150	200	210	52	550
Specific Heat	(J/kg-K)	680	670	660	665	680	700	670	890	600
Flexural Strength	(MPa)	270	280	295	294	350	275	225	280	280
Fracture Toughness	(MPa-$m^{1/2}$)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	4.5
Specific Stiffness	(E/ρ)	119	127	131	128	112	109	125	156	206
Thermal Stability	(k/α)	59	62	70	66	50	45	70	11	393

Blast Nozzles

Large Scale Furnace Liners
(1m diameter x 5m length x 15mm sidewall)



Choke Inserts

Intricate Seal Geometries

Bunner Nozzles

Blast Nozzles

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