Typical Properties

Properties of Aluminum Oxide Composites with SiC Microfiber

Property	Units	Wt (%) SiC in Al_2O_3		Alumina (99.5%)	Zirconia (TZP)	Tungsten Carbide (with 6% Co)
		7.5 % CT-8	25 % HA9S			
Density	g/cm^3	3.87	3.72	3.89	6.07	14.5
Flexural Strength (4 pt bend)	MPa	450	550	380	1350	2400
Young's Modulus	GPa	385	400	360	205	610
Vickers Hardness	GPa	18.3	20.7	17.0	13.5	20
Fracture Toughness (Indentation)	$MPa \cdot m^{1/2}$	4.5	8.5	4.0	8.5	15
Thermal Conductitivity	W / m·K	26	35	25	2.2	94
Coefficient of Thermal Expansion	10^{-6} / °C	7.2	6.8	7.6	10.0	5.0
Thermal Shock Resistance (ΔT)	°C	400	900	200	350	-
Service Temperature (no load)	°C	600-1700	600-1700	1700	2000	400

haydale