




**Quick Reference Chart: Standard Material Properties**

Property	<u>Aluminum Metal Matrix Composites</u>			<u>Reaction Bonded SiC</u>			<u>Specialty Reaction Bonded Ceramics</u>			
				SSC-702	SSC-802	SSC-902	SSC-FG	HSC-702	TSC-15	RBBC-751
	(Al/SiC)	(Al/SiC)	(Al/SiC)	(Si/SiC)	(Si/SiC)	(Si/SiC)	(Si/SiC)	(Si/SiC+Al)	(Si/SiC+Ti)	(B <sub>4</sub> C/SiC/Si)
Density (g/cc) [ $\rho$ ]	2.78	2.87	2.96	2.95	3.00	3.12	2.94	3.01	3.13	2.56
Poisson's Ratio	0.29	0.28	0.25	0.18	0.18	0.18	0.18	0.19	0.19	0.18
Young's Modulus (GPa) [E]	125	150	200	350	380	410	330	330	390	400
CTE avg 20-100°C (ppm/K) [ $\alpha$ ]	15	12	11	2.9	2.9	2.7	3.0	4.4	3.0	4.8
Thermal Conductivity (W/m-K) [k]	160	160	160	170	180	190	150	200	210	52
Specific Heat (J/kg-K)	820	750	730	680	670	660	680	700	670	890
Ultimate Tensile Strength (MPa)	370	370	340	NA	NA	NA	NA	NA	NA	NA
Flexural Strength (MPa)	NA	NA	NA	270	280	280	350	275	225	280
Fracture Toughness (MPa-m <sup>1/2</sup> )	15	14	13	4.0	4.0	4.0	4.0	5.0	5.0	5.0
Damping Factor (% Zeta)	0.24	0.26	0.58	---	0.12	---	---	---	---	---
Specific Stiffness (E/ $\rho$ )	45	52	68	119	127	131	112	109	125	156
Thermal Stability (k/ $\alpha$ )	11	13	14	59	62	70	50	45	70	11