

## TYPICAL PHYSICAL PROPERTIES OF CARBON-GRAPHITE AND GRAPHITE MATERIALS

MSDS	Comp.		Hardness Scleroscope	Density (g/cc)	Flexural Strength		Compressive Strength		Elastic Modulus		Thermal Expansion		Thermal Conductivity		Temperature Limit		Application
	Type	Grade			(psi)	(MPa)	(psi)	(MPa)	(psi x 10 <sup>6</sup> )	(GPa)	(μ in/in-°F)	(μ mm/mm-°C)	(Btu/ hr-ft-°F)	(W/ m-°K)	(°F)	(°C)	
<b>BEARING MATERIAL</b>																	
A	CGR	P-658RCH *	95	1.83	9,000	62	31,000	214	3.3	23	2.6	4.7	5	9	600	316	Bearings/Rotary Steam Joints
A	CGR *	CTI-25 *	85	1.84	10,000	69	31,000	214	2.8	19	2.8	5.0	8	14	500	260	General Purpose
C	CGCu	P-55	95	2.40	16,000	110	55,000	379	4.4	30	2.7	4.9	8	14	600	316	High Duty
D	CGAg	P-5Ag	95	2.45	16,000	110	47,000	324	4.0	28	2.8	5.0	8	14	550	288	High Duty
F	GF	P-3310	90	2.05	11,000	76	30,000	207	2.6	18	2.3	4.1	45	80	1,000	538	High Temperature
<b>SEAL RING MATERIAL</b>																	
F	GF	P-3310	90	2.05	11,000	76	30,000	207	2.6	18	2.3	4.1	45	80	1,000	538	Piston Rings
A	CGR	CNFJ ***	85	1.82	9,500	65	30,000	207	3.3	23	2.9	5.2	8	14	600	316	General Purpose
A	CGR *	CTI-6 ***	90	1.87	11,000	76	35,000	241	3.0	21	3.1	5.6	8	14	500	260	General Purpose
A	CGR	P-658RC ***	95	1.83	11,500	79	34,000	234	3.5	24	2.7	4.9	5	9	500	260	High Duty
E	CGSb	P-10356	95	2.25	14,000	96	40,000	276	3.8	26	3.5	6.3	8	14	900	482	High Duty, Blister Resistant
<b>HIGH TEMPERATURE SEAL RING / BEARING MATERIAL</b>																	
A	GH	CTI-2118	85	1.80	7,500	52	22,000	152	2.2	15	2.1	3.8	32	57	1,000	538	Seal Rings/Bearings
A	GH	P-4229	95	1.85	11,500	79	42,000	289	3.6	25	2.9	5.2	9	16	900	482	Seal Rings/Bearings
<b>ROTARY VANE COMPRESSORS / METERS</b>																	
A	CGR *	CTI-25 *	85	1.84	10,000	69	31,000	214	2.8	19	2.8	5.0	8	14	500	260	Vanes/Rotors
A	CGR *	P-8765 ***	85	1.80	9,000	62	27,000	186	2.6	18	2.5	4.5	5	9	500	260	Vanes/Rotors
F	GF	P-7454	90	2.00	7,000	48	20,000	138	1.5	10	4.0	7.2	15	27	900	482	Vanes: Dry running
<b>GLASS HANDLING MATERIAL</b>																	
A	G	P-03	75	1.82	8,000	55	20,000	138	1.8	12	2.5	4.5	40	71	1,000	538	Fiberglass/Gob Shoots/Vial Dies

## TYPICAL PHYSICAL PROPERTIES OF SILICON CARBIDE MATERIALS

MSDS	Comp.		Hardness Vickers	Density (g/cc)	Flexural Strength		Compressive Strength		Elastic Modulus		Thermal Conductivity		Temperature Limit		Poisson's Ratio	Application
	Type	Grade			(psi)	(MPa)	(psi)	(MPa)	(psi x 10 <sup>6</sup> )	(GPa)	(Btu/ hr-ft-°F)	(W/ m-°K)	(°F)	(°C)		
B	SSiC *	PS-5000 ***	3000	3.10	57,500	396	550,000	3,790	60.0	413	86	153	3000	1649	0.14	Caustic and Abrasive Service
B	SSiCG *	PGS-100 *	2200	2.95	34,000	234	109,000	751	36.2	249	90	160	1000	538	0.16	High Duty, Marginal Lubrication, High PV
B	RBSiC	PR-2000 *	2000	3.10	50,000	345	400,000	2,756	47.0	324	85	151	2500	1371	0.18	Hydrocarbon Service, High PV Capability
B	RBSiCG	PG-9725 *	2000	2.80	19,000	131	80,000	551	22.0	152	90	160	1000	538	0.23	Split Seals

Note: \* Grades are considered Generally Recognized as Safe (GRAS) by the Food and Drug Administration (FDA)  
 \*\* Grades are registered with WRAS for use in food-contacting applications.  
 \* Grades can be molded to near-net-shape.

KEY: CG - Carbon Graphite  
 G - Graphite  
 SSiC - Sintered Silicon Carbide  
 RB - Reaction Bonded  
 R - Resin Impregnation  
 F - Film Former  
 Sb - Antimony Impregnation  
 Cu - Copper Impregnation  
 Ag - Silver Impregnation  
 H - High Temperature Impregnation



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