TYPICAL PHYSICAL PROPERTIES OF CARBON-GRAPHITE AND GRAPHITE MATERIALS

MSDS	Comp. Type	Grade	Hardness Scleroscope	Density (g/cc)	Flexural Strength (psi)	Flexural Strength (MPa)	Compressive Strength (psi)	Compressive Strength (MPa)	Elastic Modulus (psi x 10^6)	Elastic Modulus (GPa)	Thermal Expansion (µ in/in-°F)	Thermal Expansion (µ mm/mm-°C)	Thermal Conductivity (Btu/ hr-ft-°F)	Thermal Conductivity (W/ m-°K)	Temperature Limit (°F)	Temperature Limit (°C)	Application
BEARING MATERIAL																	
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
SEAL RING MATERIAL																	
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
HIGH TEMPERATURE SEAL RING / BEARING MATERIAL																	
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
ROTARY VANE COMPRESSORS / METERS																	
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
GLASS HANDLING MATERIAL																	
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. Type	Grade	Hardness	Density (g/cc)	Flexural Strength (psi)	Flexural Strength (MPa)	Compressive Strength (psi)	Compressive Strength (MPa)	Elastic Modulus (psi x 10^6)	Elastic Modulus (GPa)	Thermal Conductivity (Btu/ hr-ft-°F)	Thermal Conductivity (W/ m-°K)	Temperature Limit (°F)	Temperature Limit (°C)	Poisson's Ratio	Application
B	SSiC +	PS-5000 * **	2500 V	3.10	65,000	448	550,000	3,790	60.0	413	86	153	3000	1649	0.14	Caustic and Abrasive Service
B	SSiCG +	PGS-100 *	2400 V	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 *	1800 K	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 *	1500 K	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 Silcon Carbide; RB - Reaction Bonded
R - Resin Impregnation; F - Film Former; Sb - Antimony Impregnation; Cu - Copper Impregnation
Ag - Silver Impregnation; H - High Temperature Impregnation; V - Vickers Scale; K - Knoop Scale

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