



Flexible Graphite

TYPICAL GRAFOIL SHEET PROPERTIES

TYPICAL MATERIAL PROPERTIES	Properties	English	Metric
	Density (ASTM F-1315)	70 lb/ft ³	1.12 g/cc
	Leachable Chloride Content- Industrial Grades	<50 ppm	
	Premium (Nuclear) Grades	<20 ppm	
	Sulfur Content – Industrial Grades	550 ppm	
	Premium (Nuclear) Grades	450 ppm	
	Carbon Content – Industrial Grades	98%	
	Premium (Nuclear) Grades	99.9%	
	Compressibility (ASTM F-36)	43%	
	Recovery (ASTM F-36)	15%	
	Creep Relaxation (ASTM F-38)	<5%	
	Sealability (ASTM F-37)	0.017 fluid ounces/hr	0.5 ml/hr
TYPICAL PHYSICAL PROPERTIES	Tensile Strength – (ASTM F-152) Along Length & Width		
	Industrial Grades	650 psi	4.4 MPa
	Premium (Nuclear) Grades	1000 psi	6.9 MPa
	Coefficient of Friction against Steel		
	@ 4 psi (0.03 MPa)	0.018	
	@ 8 psi (0.06 MPa)	0.052	
	@ 12 psi (0.08 MPa)	0.157	
	Compressive Strength Through Thickness (ASTM C-695)	35000 psi	240 MPa
	Modulus of Elasticity	0.2 x 10 ⁶ psi	1380 MPa
	Young's Compressive Modulus Through Thickness	27000 psi	186 MPa
TYPICAL THERMAL PROPERTIES	Functional/Temperature Range		
	Neutral or Reducing Atmosphere	-400 to 5400° F	-240 to 3000° C
	Oxidizing Atmosphere		
	GT TM A Grade	-400 to 850° F**	-240 to 450° C**
	GT TM B, GT TM K, GT TM J Grade	-400 to 975° F**	-240 to 525° C**
	Thermal Conductivity		
	Along Length & Width	960 BTU·in/ft ² ·h·F	140 W/m·K
	Through Thickness	36 BTU·in/ft ² ·h·F	5 W/m·K
	Thermal Expansion		
	“a” Direction Parallel to Layers		
	70°F-2000°F (21°C-1094°C)	-0.2 x 10 ⁻⁶ in/in·F	-0.4 x 10 ⁻⁶ m/m·°C
	2000°F-4000°F (1094°C-2206°C)	0.5 x 10 ⁻⁶ in/in·F	0.9 x 10 ⁻⁶ m/m·°C
	“c” Direction, Through Thickness		
	70°F-4000°F (21°C-2206°C)	15 x 10 ⁻⁶ in/in·F	27 x 10 ⁻⁶ m/m·°C

TYPICAL THERMAL PROPERTIES CONTINUED	Properties	English	Metric
	Specific Heat at 75° F (24°C)	0.17 Btu/lb·°F	711 J/kg·K
	Heat Storage in a 0.015" layer		
	At 1000° F (538° C)	0.035 Btu/ft2·° F	0.02 cal/cm ² ·° F
	Surface Emissivity	0.5	0.5
	Sublimation Point (Does not melt)	6000°F	3300°C
	Thermal Shock Resistance	Excellent	Excellent

** The fluid temperature in an oxidizing atmosphere may considerably exceed the indicated temperature without oxidation of the GRAFOIL flexible graphite providing that the bulk temperature of the GRAFOIL gasket is below these temperatures or that the fluid being handled does not come into direct contact with the graphite. Example: a metal spiral-wound gasket with a GRAFOIL GTTMB filler material. GRAFOIL gaskets may be used at higher temperatures with non-oxidizing fluids such as steam.

NUCLEAR RADIATION RESISTANCE--	Exposure Levels	Results
	<ul style="list-style-type: none"> • 5.5×10^{21} NVT @ 1000°C 1.5 x 10⁹ rads Gamma Radiation (1.5 x 10¹¹ erg/g) --Source: Oak Ridge National Laboratory (1978) • Integrated Neutron Flux: N = Neutrons/cc V = cm/sec T = Seconds (1 rad = 100erg/g) 	<p>No Apparent Effect</p> <p>No Apparent Effect</p>

SIZES AVAILABLE	Sheet thickness: 0.005in. to 0.040in. in 0.005in. increments	
	Width: 24in. or 39.4in. or custom slit to your requirements	
	Length: 50ft., 10ft., 108ft., 250ft., 300ft., 500ft., 1000ft., 2000ft., 3000ft., 4000ft.	
	Laminate thickness: 1/32in., 1/16in., 1/8in.	
	Length x Width:	
	24in. x 24in.	610 mm x 610 mm
	39.4 in. x 39.4 in.	1000 mm x 1000 mm
	60 in. x 60 in.	1500 mm x 1500 mm

GHTMR, GHTME, GHTML, GHTMP – 1/32 in., 1/16 in. is available in coils
 39.4 in. x 100 ft.
 39.4 in. x 250 ft.
 39.4 in. x 500 ft.