

SIGRAFLEX®

Flexible graphite foil for industrial sealing (US units)

SIGRAFLEX flexible graphite foil is manufactured from high quality expanded natural graphite free of adhesives and binders. Inhibitors can be added to enhance the performance. Advanced grades like SIGRAFLEX APX2® foil offer maximum protection against oxidation for greater reliability and longer service life.

Properties

- Soft and flexible, inert and highly impermeable to gases and liquids, fire safe
- · Asbestos-free, no associated health risks
- Free of any polymers or organic binders
- No aging or fatigue under dynamic load even at elevated temperatures

- Even in long term services, no noticeable changes in properties. Micro sealing properties will not degrade over time
- No measurable cold or warm flow characteristics up to the maximum permissible gasket stress
- Electrically conductive, no static charge
- Excellent chemical resistance and high thermal shock capability
- Operating temperatures range from -452 °F up to 932 °F depending upon the SIGRAFLEX foil grade. Consult the manufacturer when application temperatures exceed 750 °F. After consulting the manufacturer application temperatures even slightly exceeding 1000 °F might be acceptable. Life time might be limited at high temperatures, please refer to our technical guideline regarding thermal stability. Chemical resistance also needs to be considered.
- Easy handling and processability during assembly or punching

Material data of SIGRAFLEX® foil¹⁾

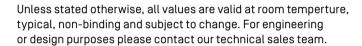
Typical properties	Units	APX2	ВР	В	SHL	N	
Density (ASTM F1315)	lb/ft³	Standard 70.0 (capability of 44.0 – 62.4 – 70.0 – 90.0)					
Thickness for rolls (ASTM F104)	in	0.010 - 0.060	0.010 - 0.060	0.010 - 0.060	0.010 - 0.060	0.010 - 0.060	
Thickness for sheets [ASTM F104]	in	0.030 - 0.120	0.030 - 0.120	0.030 - 0.120	0.030 - 0.120	0.030 - 0.120	
Ash content (ASTM C561)	%	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.0	≤ 0.5	
Carbon content (ASTM D5373B)	%	≥ 98.0	≥ 98.0	≥ 98.0	≥ 98.0	≥99.5	
Moisture content (ASTM C562)	<u></u> %	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Total sulfur content (ASTM D4239A)	ppm	< 300	< 300	< 500	< 300	< 300	
Oxidation rate in air at 670 °C/1238 °F [TGA] ²	%/hour	≤ 1.0	≤ 2.0	< 4.0	≤ 2.0		
Oxidation inhibitor		yes	yes	yes	yes	no	
Roll width	in	5" to 60"	5" to 60"	5" to 60"	5" to 60"	5" to 60"	
Tape width	in	3/16" to 5"	3/16" to 5"	3/16" to 5"	3/16" to 5"	3/16" to 5"	
Standard roll length	ft	330	330	330	330	330	

 $^{^{1)}}$ Data are valid for the bigger part of the product range. Other values or dimensions on request.

^{2]} Based on a thickness of ≥ 0.015 " and a density of ≥ 70 lb/ft³

Material data of SIGRAFLEX® grade B [density of 70 lb/ft³ or 1.12 g/cm³]

Typical properties	Units	Values
Thermal conductivity at 70 °F in p	olane	250
Netzsch LFA477 through p	olane Wm ⁻¹ K ⁻¹	5
in p	olane	10
Resistivity at 70 °F (ASTM C611) through p	olane μΩm	750
Coefficient of thermal expansion in p	olane	approx. 1
[70 – 1800 °F] through p	olane10 ⁻⁶ K ⁻¹	approx. 50
Tensile strength (ASTM F152D)	psi	500
Young's modulus at 5000 psi stress	psi	80,000
"m"-fa	actor	2
Gasket factors (ASTM F3149) "y"-fa	actor psi	1000
	"Gb"	970
	"a"	0.384
PVRC design constants	"Gs" psi	0.050
Tightness parameter TP _{max} at 15,000 psi st	ress psi	1776
Sealability (DIN 3535)	ml/min	< 1.0
Compressibility [ASTM F36A]		40
Recovery (ASTM F36A)	%	14
Creep relaxation [ASTM F38B]	%	4



Applications

- Sheet products such as SIGRAFLEX BSSC or BTCSS
- Metallic gaskets such as spiral wound gaskets, corrugated metal gaskets and kammprofile gaskets
- Compression packing for stuffing boxes



Common grades of SIGRAFLEX® foil for industrial sealing

B, BP, APX2, SHL for general industrial applications

B-PSA with pressure sensitive adhesive

B-TEX and B-COR for speciality tapes

AQ with proprietary corrosion inhibitor (maximum 670 °F)

S, N, HP, UHP for nuclear, semiconductor, ceramics, LED and other industries



Additional information on our SIGRAFLEX sealing materials can be found under "Download Center" on our homepage.

www.sigraflex.com/downloads



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