

SIGMA DATA SHEETS

S+SIGMA



SIGMA 500 is a biaxially orientated sheet containing PTFE and hollow glass microspheres for use in sealing all chemicals except molten alkali metals, fluorine gas and hydrogen fluoride. SIGMA 500 has exceptional compression characteristics making it suitable for use in glass lined flanges or where loading problems exist. Sigma 500 is WRAS approved for both hot and cold potable water services and can be used at all concentrations of sulfuric acid. Sigma 500 complies with FDA regulations and is also available without pigment as white-colored Sigma 501. The data below is based on a 1/32" sheet.

SERVICE

Max T	500°F (260°C)
Max P	1235 psi (8.5 MPa)
pH Range	0 - 14

PHYSICAL PROPERTIES

Color	Blue
Density	87 lb/ft ³ (1.40 g/cc)
Sheet Thickness	1/32" - 1/8" (0.75 mm - 3.20 mm)
Sheet Size	60" x 60" (1.50 m x 1.50 m)

MECHANICAL PROPERTIES (ASTM F152)

Cross Grain Tensile	1740 psi (12.0 MPa)
With Grain Tensile	1940 psi (13.4 MPa)

IMMERSION PROPERTIES (ASTM F146)

Thickness Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	2%
Weight Increase	Oil #3 @ 300°F	3%
	Fuel B @ 70 - 85°F	4%

SEALING PROPERTIES

ASTM F36J	Compressibility	42%
	Recovery	40%
ASTM F37A	Fuel A @ 10 psi & 1000 psi Gasket Stress	0.12 mL/hr.
ASTM F38	Creep Relaxation	21.2%
BS 7531	Nitrogen Gas Permeability	0.02 mL/min.



BIAXIALLY ORIENTATED PTFE

PRODUCT PROFILE

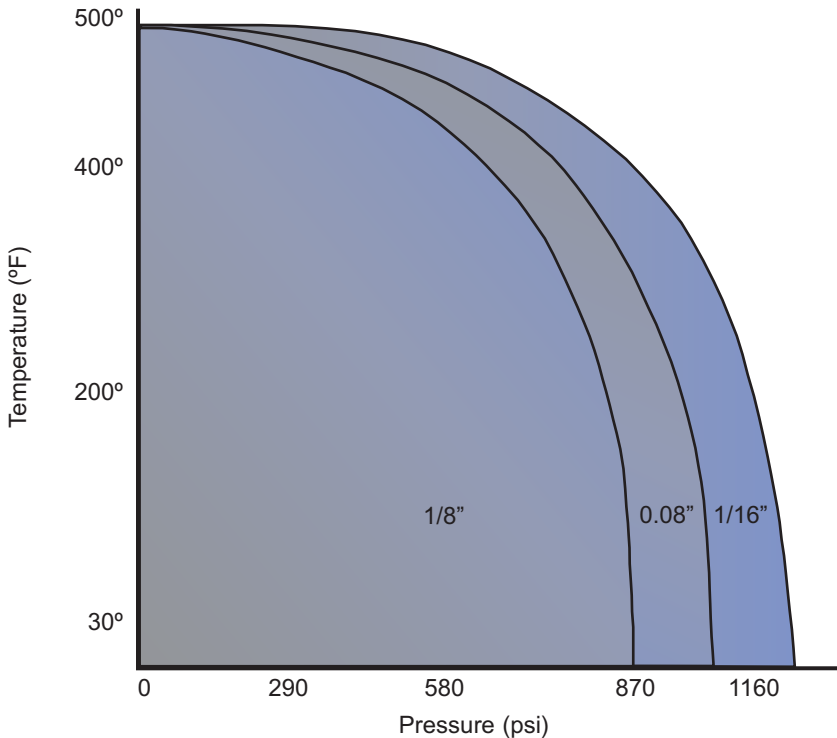
DESIGN INFORMATION

Gasket Constants	m	1.4
	y	1885 psi (13.00 MPa)
PVRC Constants (1/16" thick)	Gb	4 psi
	a	0.804
	Gs	0.115 psi
TPmax	13150	
Recommended Surface Finish	125 - 250 μ in (3.2 - 6.3 μ m)	
Dielectric Strength	6.1 kv/mm	
ASTM Callout	F452140M5 †	† some digits may be chosen differently

PRESSURE CONTAINMENT AND TEMPERATURE

SIGMA 500 Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	500°F	500°F	500°F
Max. Pressure (psi)	1235	1015	870

NOTE: Above pressure/temperature cannot be used simultaneously.



Major Manufacturing Plants

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Welcome To The New Generation In Sealing Technology





SIGMA 511 is a biaxially orientated silica-filled PTFE sheet for use in sealing all chemicals except molten alkali metals, fluorine gas, and hydrogen fluoride. Sigma 511 is WRAS approved for both hot & cold potable water services and can be used at all concentrations of sulfuric acid. The data below is based on a 1/32" sheet. Sigma 511 complies with FDA regulations.

SERVICE

Max T	500°F (260°C)
Max P	1235 psi (8.5 MPa)
pH Range	0 - 14

PHYSICAL PROPERTIES

Color	Fawn
Density	137 lb/ft ³ (2.19 g/cc)
Sheet Thickness	1/32" - 1/8" (0.75 mm - 3.20 mm)
Sheet Size	60" x 60" (1.50 m x 1.50 m)

MECHANICAL PROPERTIES (ASTM F152)

Cross Grain Tensile	2175 psi (15.0 MPa)
With Grain Tensile	2230 psi (15.4 MPa)

IMMERSION PROPERTIES (ASTM F146)

Thickness Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	1%
Weight Increase	Oil #3 @ 300°F	2%
	Fuel B @ 70 - 85°F	3%

SEALING PROPERTIES

ASTM F36J	Compressibility	10%
	Recovery	44%
ASTM F37A	Fuel A @ 10 psi & 1000 psi Gasket Stress	0.42 mL/hr.
ASTM F38	Creep Relaxation	23.9%
BS 7531	Nitrogen Gas Permeability	0.01 mL/min.



DESIGN INFORMATION

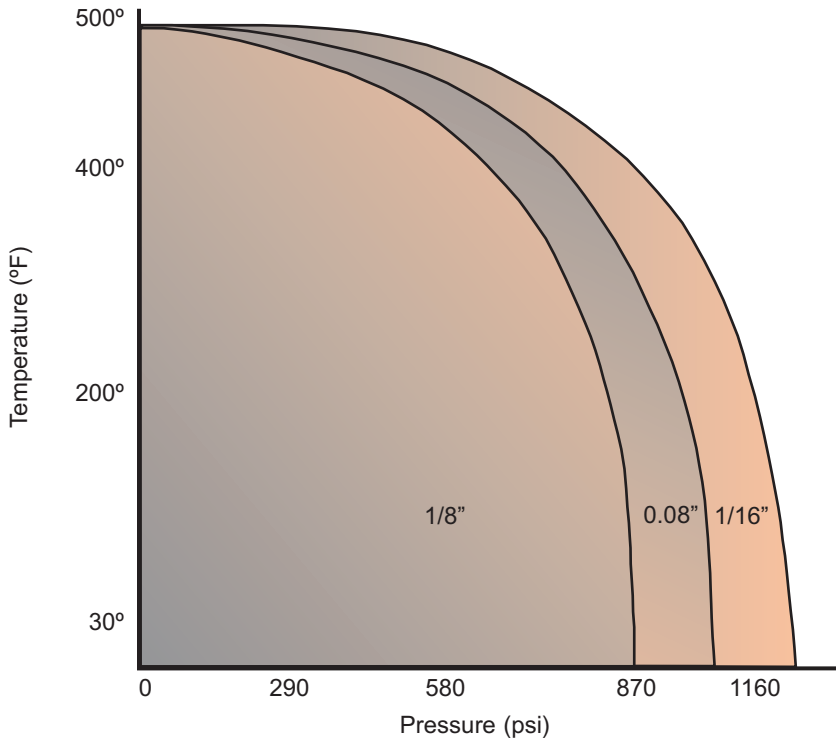
Gasket Constants	m	1.4
	y	2320 psi (16.0 MPa)
PVRC Constants (1/16" thick)	Gb	209 psi
	a	0.356
	Gs	0.00498 psi
TPmax	24750	
Recommended Surface Finish	125 - 250 μ in (3.2 - 6.3 μ m)	
Dielectric Strength	17.7 kv/mm	
ASTM Callout	452110E11M6 †	

† some digits may be chosen differently

PRESSURE CONTAINMENT AND TEMPERATURE

SIGMA 511 Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	500°F	500°F	500°F
Max. Pressure (psi)	1235	1015	870

NOTE: Above pressure/temperature cannot be used simultaneously.



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SIGMA 522 is a biaxially orientated barium sulfate-filled PTFE sheet with exceptional compression characteristics. The structure consists of a Sigma 533 core with soft, conformable PTFE facings, making it suitable for use with glass-lined flanges or any other application where loading problems exist. Sigma 522 (also Sigma 533) is acceptable for use in aqueous hydrofluoric acid depending on operating conditions, but is not suitable for sealing molten alkali metals or fluorine gas. Sigma 522 complies with FDA regulations. The data below is based on a 1/16" sheet.

SERVICE

Max T	500°F (260°C)
Max P	1235 psi (8.5 MPa)
pH Range	0 - 14

PHYSICAL PROPERTIES

Color	White with off-white core
Density	125 lb/ft ³ (2.00 g/cc)
Sheet Thickness	1/16" - 1/8" (1.50 mm - 3.20 mm)
Sheet Size	60" x 60" (1.50 m x 1.50 m)

MECHANICAL PROPERTIES (ASTM F152)

Cross Grain Tensile	1220 psi (8.4 MPa)
With Grain Tensile	1250 psi (8.6 MPa)

IMMERSION PROPERTIES (ASTM F146)

Thickness Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	1%
Weight Increase	Oil #3 @ 300°F	12%
	Fuel B @ 70 - 85°F	4%

SEALING PROPERTIES

ASTM F36J	Compressibility	33.6%
	Recovery	23%
ASTM F37A	Fuel A @ 10 psi & 1000 psi Gasket Stress	0.66 mL/hr.
ASTM F38	Creep Relaxation	42%
BS 7531	Nitrogen Gas Permeability	0.01 mL/min.



BIAXIALLY ORIENTATED PTFE

PRODUCT PROFILE

DESIGN INFORMATION

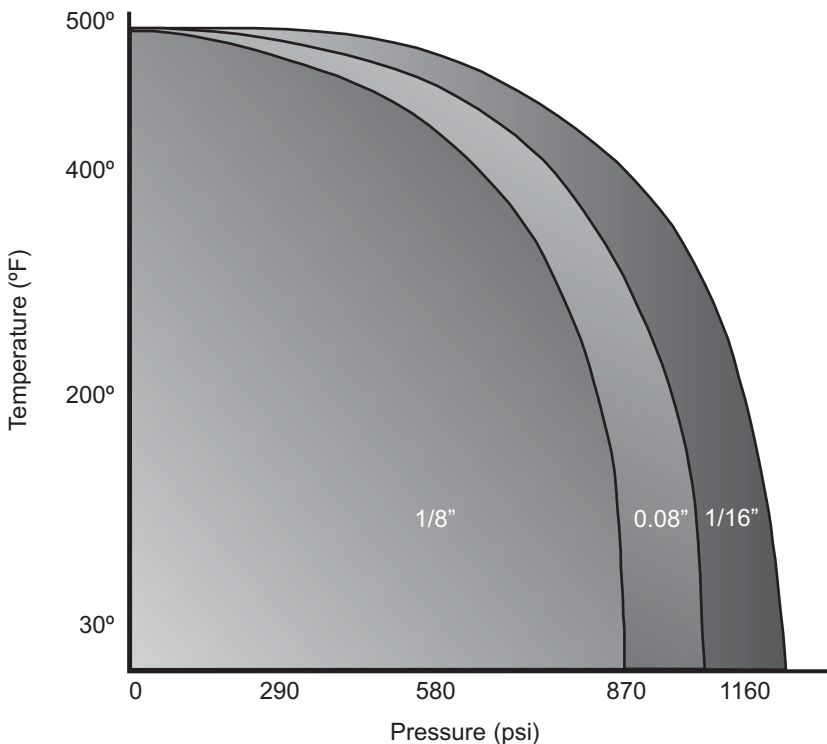
Gasket Constants	m	1.4
	y	1885 psi (13.0 MPa)
PVRC Constants (1/16" thick)	Gb	472 psi
	a	0.25
	Gs	0.0370 psi
TPmax	26600	
Recommended Surface Finish	125 - 250 μ in (3.2 - 6.3 μ m)	
Dielectric Strength	8.2 kv/mm	
ASTM Callout	455120E12M4 †	

† some digits may be chosen differently

PRESSURE CONTAINMENT AND TEMPERATURE

SIGMA 522 Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	500°F	500°F	500°F
Max. Pressure (psi)	1235	1015	870

NOTE: Above pressure/temperature cannot be used simultaneously.



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SIGMA 533 is a pigment-free biaxially orientated, barium sulfate-filled PTFE sheet for use in sealing food, pharmaceutical applications, aqueous hydrogen fluoride solutions, strong alkaline solutions (eg caustic soda, black liquor) and other general chemical media. Sigma 533 is acceptable for use in aqueous hydrofluoric acid, but is not suitable for sealing molten alkali metals or fluorine gas. The data given below is based on a 1/32" sheet.

SERVICE

Max T	500°F (260°C)
Max P	1235 psi (8.5 MPa)
pH Range	0 - 14

PHYSICAL PROPERTIES

Color	Off White
Density	180 lb/ft ³ (2.89 g/cc)
Sheet Thickness	1/32" - 1/8" (0.75 mm - 3.20 mm)
Sheet Size	60" x 60" (1.50 m x 1.50 m)

MECHANICAL PROPERTIES (ASTM F152)

Cross Grain Tensile	2260 psi (15.6 MPa)
With Grain Tensile	2275 psi (15.7 MPa)

IMMERSION PROPERTIES (ASTM F146)

Thickness Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	1%
Weight Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	2%

SEALING PROPERTIES

ASTM F36J	Compressibility	11%
	Recovery	46%
ASTM F37A	Fuel A @ 10 psi & 1000 psi Gasket Stress	0.42 mL/hr.
ASTM F38	Creep Relaxation	16.8%
BS 7531	Nitrogen Gas Permeability	0.01 mL/min.



BIAXIALLY ORIENTATED PTFE SHEET

PRODUCT PROFILE

DESIGN INFORMATION

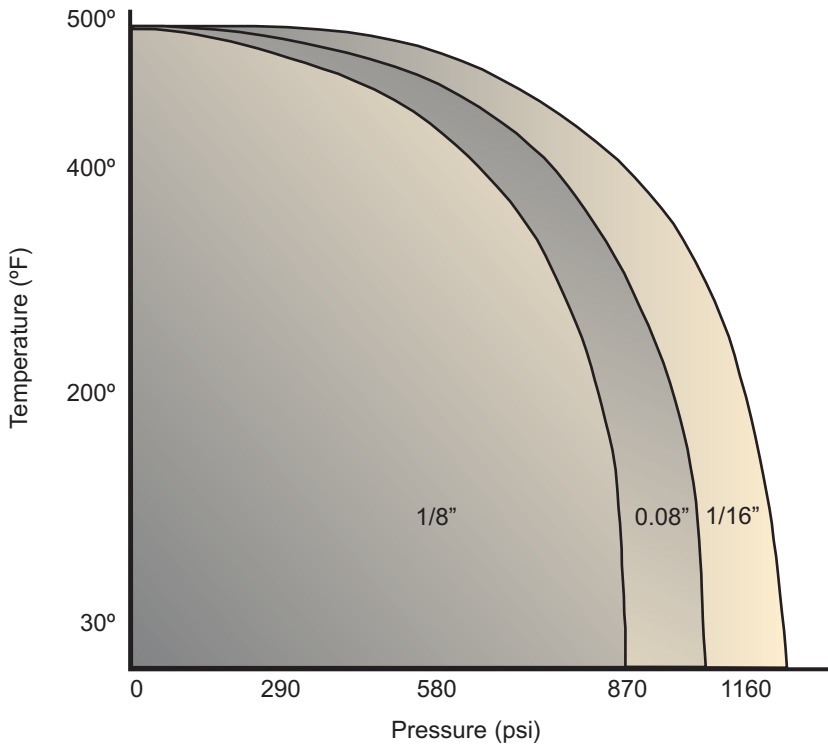
Gasket Constants	m	1.4
	y	2320 psi (16.00 MPa)
PVRC Constants (1/16" thick)	Gb	115 psi
	a	0.382
	Gs	0.000065 psi
TPmax	26800	
Recommended Surface Finish	125 - 250 μ in (3.2 - 6.3 μ m)	
Dielectric Strength	11.0 kv/mm	
ASTM Callout	452110E11M6 †	

† some digits may be chosen differently

PRESSURE CONTAINMENT AND TEMPERATURE

SIGMA 533 Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	500°F	500°F	500°F
Max. Pressure (psi)	1235	1015	870

NOTE: Above pressure/temperature cannot be used simultaneously.



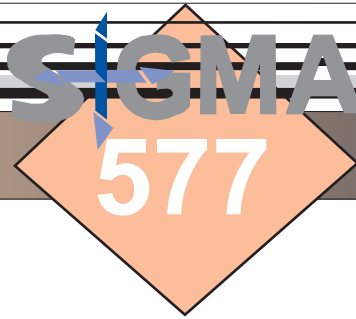
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SIGMA 577 is a biaxially orientated silica-filled PTFE sheet with exceptional compression characteristics. The structure consists of a Sigma 511 core with soft, conformable PTFE facings, making it suitable for use with glass lined flanges or any other application where loading problems exist. Sigma 577 is good for use in all chemicals except molten alkali metals, fluoride gas and hydrogen fluoride. Sigma 577 is WRAS approved for both hot and cold potable water services and can be used at all concentrations of sulfuric acid. Sigma 577 is FDA compliant. The data below is based on a 1/16" sheet.

SERVICE

Max T	500°F (260°C)
Max P	1235 psi (8.5 MPa)
pH Range	0 - 14

PHYSICAL PROPERTIES

Color	White with fawn core
Density	98 lb/ft ³ (1.57 g/cc)
Sheet Thickness	1/16" - 1/8" (1.5 mm - 3.2 mm)
Sheet Size	60" x 60" (1.50 m x 1.50 m)

MECHANICAL PROPERTIES (ASTM F152)

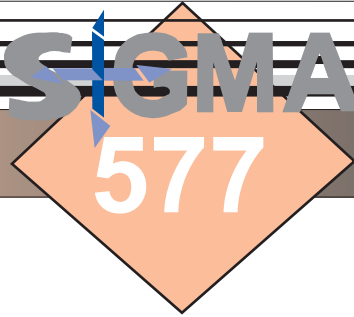
Cross Grain Tensile	1220 psi (8.4 MPa)
With Grain Tensile	1250 psi (8.6 MPa)

IMMERSION PROPERTIES (ASTM F146)

Thickness Increase	Oil #3 @ 300°F	1%
	Fuel B @ 70 - 85°F	1%
Weight Increase	Oil #3 @ 300°F	12%
	Fuel B @ 70 - 85°F	4%

SEALING PROPERTIES

ASTM F36J	Compressibility	33.6%
	Recovery	23%
ASTM F37A	Fuel A @ 10 psi & 1000 psi Gasket Stress	0.66 mL/hr.
ASTM F38	Creep Relaxation	42%
BS 7531	Nitrogen Gas Permeability	0.01 mL/min.



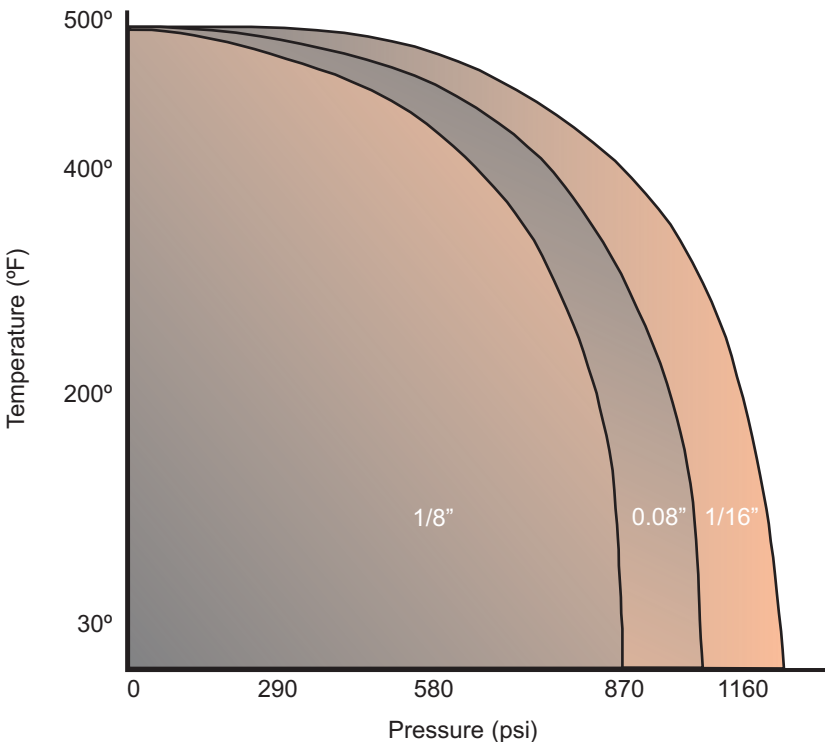
DESIGN INFORMATION

Gasket Constants	m	1.4
	y	1885 psi (13.00 MPa)
PVRC Constants (1/16" thick)	Gb	N/A
	a	N/A
	Gs	N/A
Recommended Surface Finish	125 - 250 μ in (3.2 - 6.3 μ m)	
Dielectric Strength	8.20 kv/mm	
ASTM Callout	455120E12M4 †	† some digits may be chosen differently

PRESSURE CONTAINMENT AND TEMPERATURE

SIGMA 577 Thickness	up to 1/16"	0.08"	1/8"
Max. Temperature	500°F	500°F	500°F
Max. Pressure (psi)	1232	1087	870

NOTE: Above pressure/temperature cannot be used simultaneously.



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