THE FLEXITALLIC SIGMA® RANGE
TOTAL INTEGRITY

When it comes to applications involving aggressive chemicals, SIGMA® provides enhanced levels of sealing performance when compared to conventional materials.

While conventional PTFE-based sealing materials have long been the choice for superb chemical resistance, they are not ideally suited to achieve the maximum reduction of creep in situations where seal integrity is paramount—a vital consideration for stringent long-term emission control.

Utilizing a unique manufacturing process exclusive to Flexitallic, we created SIGMA®: an innovatively-engineered line of biaxially orientated PTFE gasket materials.

Developed for processes ranging from cryogenic temperatures to 500°F (260°C), and suitable for sealing virtually every chemical medium across the entire pH range (0-14), SIGMA® pairs the outstanding chemical resistance of PTFE with enhanced dimensional stability to improve overall material stress retention.

The non-stick properties of the SIGMA® range of materials offer excellent removal after usage to dramatically reduce the downtime on shutdown.

In addition, all components in the SIGMA® range are FDA compliant. This inherently clean nature makes them ideal for use in industries where product contamination is of concern such as food, pharmaceuticals and electronics.

For total sealing reliability, inventory consolidation and strict long-term emission control, nothing out-performs SIGMA® —

The Innovation of Integrity.

www.flexitallic.com

THE FLEXITALLIC GROUP

The Flexitallic Group is the international market leader in the manufacture and supply of high quality, high value industrial static sealing products.

Developer of the spiral wound gasket in 1912 in the US, Flexitallic continues its legacy of innovation with product materials like Thermiculite® and Sigma®.

In 1998 Flexitallic set a new standard for sealing technology with the introduction of Thermiculite® gasket material. Thermiculite® is now available as tanged sheet and calendered, filler material for spiral wound gaskets, and as a facing on kammprofile gaskets. This material solves numerous end user problems, particularly those with high temperature processes where traditional sealing materials fail. Thermiculite® Critical Service materials are rated for temperatures up to 1000°C and pass the API 607 fire test.

Flexitallic's global customer service network of owned manufacturing facilities, licensees and global distribution network ensure local demand is met quickly, with a combination of the highest product quality and customer service.

With a varied product offering that includes spiral wound gaskets, semi-metallic gaskets, RTJ gaskets, Kammprofile, sheet gaskets, and dynamic and static packings, The Flexitallic Group draws upon its past and present day mixture of leadership, quality, service and technology to develop sealing solutions for industry all around the world.

Allied Distributor

Flexitallic

Effectively manage your gasket selection process, simplify inventory requirements and receive proven long-term sealing with SIGMA® gasket material — The Innovation of Integrity.

Contact your local Allied Distributor today!

Flexitallic

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Flexitallic®

Global Leader in Sealing Technology

CHEMICALLY RESISTANT. UNIFORMLY STRONG. INHERENTLY CLEAN.

TOTAL INTEGRITY

FOR THE MOST DEMANDING APPLICATIONS

SIGMA®

The Innovation of Integrity.

SIGMA® 500

- Enhanced compressibility for low bolt loads
- Improved flexibility over conventional calendered and graphite sheets
- Suitable for use in alkali, acid and chlorine service
- Can be used for all concentrations of sulfuric acid
- WRAS approved for hot and cold potable water services

SIGMA® 511

- Standard compressibility
- Strong acids (except hydrofluoric) to general chemicals
- Can be used for all concentrations of sulfuric acid
- Suitable for oxygen and peroxide service
- WRAS approved for hot and cold potable water services

SIGMA® 533

- Standard compressibility
- Ideal for sealing food, pharmaceutical and other non-contamination applications
- Strong alkaline solutions and other general chemicals
- Aqueous hydrofluoric acid below 49%
- Not suited for sealing molten alkali metals or fluorine gas

SIGMA® 588

- Unique cellular structure - low load sealing for damaged contact surfaces
- Layered structure enhances dimensional stability and assists installation of larger gaskets
- Layers bonded by direct sintering - no adhesive layer or potential leak paths
- Suitable for use in both concentrated acid and alkali service
- Ease of use - Eliminates jacket 'fold over' associated with large envelope gaskets

SIGMA® 600

- High compressibility for ultra-low bolt loads; plastic and glass lined equipment
- Suitable for use across a wide range of chemical media; acids, alkalis, halogens and hydrocarbons
- Universal - Minimizes inventory requirements and eliminates 'mis-application'
- Easy to cut, handle, install and remove
- Pigment and filler free - suitable for 'contamination sensitive' applications

SIGMA 500 / 511 / 533 / 588 / 600

Typical Physical and Mechanical Properties

	Unit	Standard	SIGMA® 500	SIGMA® 511	SIGMA® 533	SIGMA® 588	SIGMA® 600
Color		na	Blue	Fawn	Off-White	White	White
Density	g/cm^3 (lb/ft^3)	ASTM F1513	1.4 (87)	2.2 (137)	2.9 (180)	1.1 (68)	0.8 (50)
Filler System	na	na	Glass Microspheres	Silica	Barytes	na	na
Tensile Strength	MPa (psi)	ASTM F152	14 (2030)	15 (2175)	15 (2175)	10 (1450)	8 (1160)
Compressibility	%	ASTM F36	35	7	8	55	68
Recovery	%	ASTM F36	44	44	43	24	5
Residual Stress (175°C)	MPa	DIN 52913	30	30	28	28	34
Creep Relaxation	%	ASTM F38	31	35	33	<50	<50
Gas Leakage	mL/min	DIN 3754	0.0	0.0	0.0	0.0	0.0
Liquid Leakage (50 psi internal pressure)	mL/hr	ASTM F37	0.7	1.8	1.8	1.5	1.2

Gasket Constants & Design Information - ASME / PVRC

(Data based on 1/16" (1.5mm) thickness material)

	Unit	Standard	SIGMA® 500	SIGMA® 511	SIGMA® 533	SIGMA® 588	SIGMA® 600
m Factor	na	ASME	1.4	1.4	1.4	1.4	1.4
Y Value	MPa (psi)	ASME	13 (1885)	16 (2320)	16 (2320)	11 (1595)	11 (1595)
Gb	psi	PVRC ROTT	4	209	115	317	405
a	na	PVRC ROTT	0.80	0.36	0.38	0.29	0.27
Gs	psi	PVRC ROTT	$11.5x10^{-2}$	$4.9x10^{-3}$	$6.5x10^{-5}$	$1.1x10^{-6}$	$24x10^{-2}$
Tpmax†	na	PVRC ROTT	13150	24750	26800	50250	31850
Qsmax (RT)	MPa	EN13555	>220	>220	>220	>220	tba*
Qsmax (175°C)	MPa	EN13555	>220	>220	>220	>220	tba*
Qsmax (225°C)	MPa	EN13555	>180	>220	>220	>220	tba*
PQr (60 MPa/175°C)**	na	EN13555	0.72	0.74	0.60	0.51	tba*
Qmin/0.01***	MPa	EN13555	16	34	31	16	15
Qsmin/0.01****	MPa	EN13555	<10	15.0	<10	<10	<10

† Draft 9 Test Procedure

* For further information please consult Flexitallic Applications Engineering Department

** Stiffness; 500kN/mm

*** Leak rate: mg/m^2

**** QA:40 MPa Additional EN13555 data in available on request.

Innovative Materials, Engineered Solutions

Flexitallic is proud to introduce the SIGMA® family of biaxially orientated PTFE sheet — proven to perform where gasket integrity is paramount. Specified by more than 500 major corporations, SIGMA® stands side-by-side with Flexitallic metal gaskets and Thermiculite® gasket materials to provide you with the complete and innovative sealing solutions you demand to handle all your sealing applications.

By designing seals that last longer in the most difficult applications, SIGMA® helps production processes increase their output capabilities.

Total Integrity

Pressure Containment and Temperature

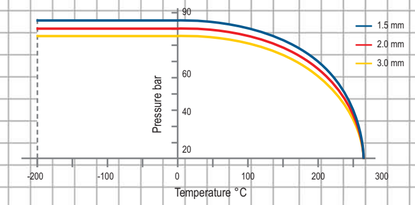
Thickness	up to 1/16" (1.5 mm)	0.08" (2.0 mm)	1/8" (3.0 mm)
Max. Temperature	500°F (260°C)	500°F (260°C)	500°F (260°C)
Max. Pressure, psig (bar)	1235 (85)	1160 (80)	1088 (75)

NOTE: The pressure/temperature (shown above) cannot be used simultaneously.

pH Range		0-14
Sheet Sizes*	US STANDARD	60" x 60"
	METRIC	1.5 m x 1.5 m
Sheet Thicknesses*	US STANDARD	1/32" - 1/8"
	METRIC	0.75 mm - 3.0 mm
Recommended Surface Finish	US STANDARD	125 - 250µin
	METRIC	3.2 - 6.3 µm

NOTE: Other sheet sizes and thicknesses are available on request.

Sigma Range–Pressure/Temperature Envelope



Material Compliance and Approvals:
TA Luft, DVGW, BAM, WRAS, UDT, FDA, The Chlorine Institute.