PERFORMANCE SEALING SOLUTIONS

eSheet™

EXPANDED PTFE GASKET SHEET
TECHNICAL DATA SHEET (rev 7/1/20)

DESCRIPTION

TFCO Inc ***eSheet***™ is a soft, compressible gasket sheet made of 100% pure, multi-directionally expanded PTFE. ***eSheet***™ is resistant to virtually all chemicals and has excellent creep and cold flow resistance. It is capable of withstanding a wide range of pressure & temperature conditions and is ideal for tight sealing of bolted joints in all process industries including chemical, petrochemical, food, power generation, pulp/paper and general industrial.

CHARACTERISTICS

- **COMPATIBLE WITH MOST CHEMICALS**

eSheet™ is 100% pure Polytetrafluoroethylene (PTFE). There are no fillers or binders to limit chemical compatibility. *eSheet*™ can be used in virtually any service.

- **SOFT AND CONFORMABLE**

Upon compression, *eSheet*™ conforms to surface irregularities, making it ideal for rough, pitted, scratched or otherwise damaged flange surfaces.

- **RESISTS CREEP AND COLD FLOW**

Unlike molded/skived PTFE which are highly subject to creep, *eSheet*™ exhibits good creep and cold flow resistance, along with good bolt torque retention.

- **DIMENSIONALLY STABLE**

eSheet™ retains its width upon compression, making it ideal for use in narrow flanges.

- **UNLIMITED SHELF LIFE**

eSheet™ exhibits no age deterioration, and as a result has unlimited shelf life.

- **U-V RESISTANT**

eSheet™ is not affected by ultraviolet, and is resistant to oxidation, discoloration and embrittlement.

- **FLAME RESISTANT**

eSheet™ is flame-resistant due to its high melting point and auto-ignition temperature.

SPECIFICATIONS

Sheet Size	1500mm x 1500mm (59” x 59”)
Tolerance	+/- 20mm (3/4”)
Thickness	0.75mm (1/32”) 3.0mm (1/8”) 1.0mm (0.040”) 4.5mm (3/16”) 1.5mm (1/16”) 6.0mm (1/4”) 0.5mm, 2.0mm, 2.5mm, 4.0mm, 5.0mm, 9.0mm available upon request
Tolerance	0.5mm – 2.0mm +15%, -10% 3.0mm – 9.0mm +10%, -10%
Composition	100% PTFE
Color	White
Density	0.8 g/cc
Pressure	Full Vacuum to 3,000 psi (Full Vacuum to 210 bar)
Temperature	-400 to 525ºF (-240 to 260ºC) 600ºF (315ºC) intermittent
pH	0-14 (resistant to all common chemicals, except molten alkali metals and elemental fluorine)

APPROVALS & CERTIFICATIONS

FDA	21CFR177.1550 Indirect Food Additives – Polymers
EU Reg 10/2011	Plastic materials intended for contact with food
TA LUFT	VDI 2440 Emission Control – Mineral Oil Refineries
BAM	Reactivity with Oxygen
DVGW	DIN 3535-6 Gaskets for Gas Supply (gas valves, gas appliances and gas mains)
USP Class VI	Biocompatibility

QUALITY ASSURANCE

ISO 9001, ISO 14001, OHSAS 18001

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TYPICAL PHYSICAL PROPERTIES	
Compressibility ASTM F36	61%
Recovery ASTM F36	18%
Tensile Strength ASTM F152	3200 psi (22 MPa)
Elongation ASTM F152	200%

DESIGN VALUES	
"m" factor	2.5
"Y" factor	2900 psi (20 MPa)
P x T (psi x °F) max	350,000

SEALABILITY

EN 13555 (Gasket Thickness = 1/8")

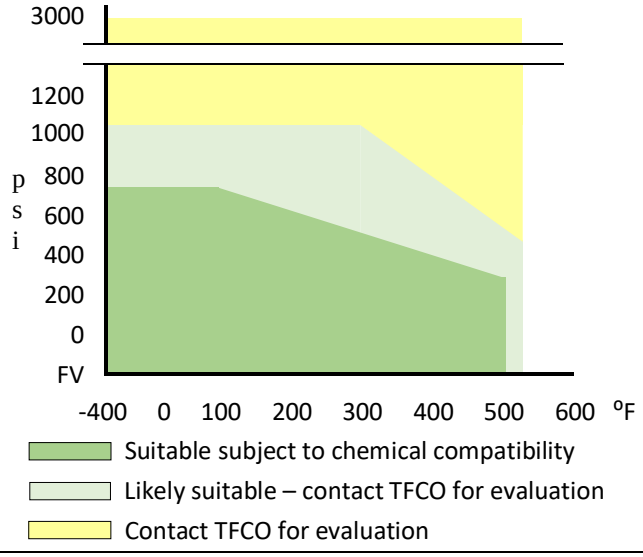
Tightness Class, L	*Gasket Stress MPa (psi)*	*Conditions*
Q_{min} / $L_{0.01}$	18 (2,610)	He 10 bar (145 psi)
Q_{Smin} / $L_{0.01}$	5 (725)	
Q_{min} / $L_{0.01}$	27 (3,915)	He 40 bar (580 psi)
Q_{Smin} / $L_{0.01}$	10 (1,450)	
Q_{min} / $L_{0.0001}$	33 (4,785)	He 10 bar (145 psi)
Q_{Smin} / $L_{0.0001}$	5 (725)	
Q_{min} / $L_{0.0001}$	38 (5,510)	He 40 bar (580 psi)
Q_{Smin} / $L_{0.0001}$	19 (2,755)	
TA Luft (VDI 2440)	Leak Rate = 4.4E-07 mbar x l / (s x m) < 1.0E-04 mbar x l / (s x m) PASS	

RELAXATION

EN 13555 (Relaxation Ratio, P_{QR}, for Stiffness C = 500 kN/mm and Gasket Thickness = 1/8")

Gasket Stress	*P_{QR}*	*Temperature*
30 MPa (4,350 psi)	0.92	25°C (77°F)
30 MPa (4,350 psi)	0.42	150°C (302°F)
30 MPa (4,350 psi)	0.34	230°C (446°F)
50 MPa (7,250 psi)	0.92	25°C (77°F)
80 MPa (11,600 psi)	0.91	25°C (77°F)
ASTM F38 Creep Relaxation		21%

PERFORMANCE



HOT BLOWOUT TESTING (Gasket Thickness = 1/8")

HOBT2 with Temperature Cycles

Class 300 (1010 psi) – Reserve Temperature 500°F

HOBT2 without Temperature Cycles

Class 150 – No blowout at max test temperature of 700°F (371°C) at 435 psi (30 bar)[1]

HOBT1 (constant Temperature with Increasing Pressure)

Single Test -- No blowout at max test pressure of 2500 psi (172 bar) @ 302°F (150°C)[1]

[1] Result represents test data, not rating

OXYGEN & GAS CERTIFICATIONS

BAM – Gaseous Oxygen Service	16 bar (230 psi) @ 60°C (140°F)
DVGW – Gas DIN 3535-6	Leak Rate = 6.2E-03 mg / (s x m) < 0.1 mg / (s x m) PASS

CRUSH STRENGTH (Gasket Thickness = 1/8")

Qsmax, MPa (psi)	*P_{QR}*	*Temperature*
200 (29,000)	0.94	25°C (77°F)
50 (7,250)	0.41	150°C (302°F)
40 (5,800)	0.34	230°C (446°F)

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