Hanna Rubber Company

Expanded PTFEGasket Sheet

DESCRIPTION

Hanna Rubber ***EPTFE*** is a soft, compressible gasket sheet made of 100% pure, multi-directionally expanded PTFE. ***EPTFE*** 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**

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

- **SOFT AND CONFORMABLE**

Upon compression, *EPTFE* 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, *EPTFE* exhibits good creep and cold flow resistance, along with good bolt torque retention.

- **DIMENSIONALLY STABLE**

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

- **UNLIMITED SHELF LIFE**

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

- **U-V RESISTANT**

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

- **FLAME RESISTANT**

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

SPECIFICATIONS

EPTFE	1500mm x 1500mm (59” x 59”) +/- 20mm (3/4”)
Available Thicknesses	0.75mm (1/32”) 3.0mm (1/8”) 1.0mm (0.040”) 5.0mm (3/16”) 1.5mm (1/16”) 6.0mm (1/4”) Upon request: 0.5mm, 2.0mm, 2.5mm, 4.0mm, 5.0mm, 9.0mm
Thickness Tolerance	0.5mm – 2.0mm +15%, -10% 3.0mm – 9.0mm +10%, -10%
EPTFE	2000mm x 1950mm (78-3/4” x 76-3/4”) +/- 20mm (3/4”)
Thickness	3mm (1/8”) +/- 10%
Composition	100% PTFE
Color	White
Density	0.8 g/cc
Pressure	Full Vacuum to 3,000 psi (210 bar)
Temperature	-400ºF to 500ºF (-240ºC to 260ºC)
pH	0-14 (not to be used with molten alkali metals or 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

Comparable to Teadit 24SH, Inertech Inertex SQ-S, Thermoseal Soft-Seal®

Hanna Rubber Company

Expanded PTFE Gasket Sheet

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 ^{o}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)	

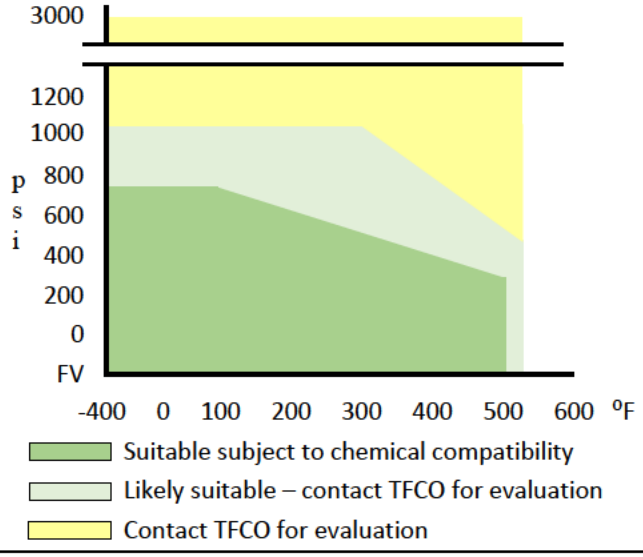
TA Luft (VDI 2440)	Leak Rate = 4.4E-07 mbar x l / (s x m) < 1.0E-04 mbar x l / (s x m) PASS

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^{o}C (77^{o}F)
30 MPa (4,350 psi)	0.42	150^{o}C (302^{o}F)
30 MPa (4,350 psi)	0.34	230^{o}C (446^{o}F)
50 MPa (7,250 psi)	0.92	25^{o}C (77^{o}F)
80 MPa (11,600 psi)	0.91	25^{o}C (77^{o}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^{o}F

HOBT2 without Temperature Cycles

Class 150 – No blowout at max test temperature of 700^{o}F (371^{o}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^{o}F (150^{o}C)[1]

[1] Result represents test data, not rating

OXYGEN & GAS CERTIFICATIONS

BAM – Gaseous Oxygen Service	16 bar (230 psi) @ 60^{o}C (140^{o}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^{o}C (77^{o}F)
50 (7,250)	0.41	150^{o}C (302^{o}F)
40 (5,800)	0.34	230^{o}C (446^{o}F)

Hanna Rubber Company
908 West 25th Street
Kansas City, MO 64108

www.hannarubber.com 816-221-9600 sales@hannarubber.com