

## Emflon® PTFE Membrane

### Description

Emflon® PTFE membrane is a versatile, hydrophobic membrane that remains resistant to high surface tension liquids while venting gases. Emflon PTFE membrane is available in two formats: unsupported or laminated to polyester or polypropylene support materials. Emflon PTFE membrane is regularly used by manufacturers in the automotive, electronics, food and beverage, and other industrial market segments to satisfy venting requirements.

### Advantages of Pall's Emflon PTFE Membrane

- Certified ISO 9001 manufacturing produces lot-to-lot and within-lot consistency
- Low initial pressure drops
- Wide chemical compatibility
- Wide temperature capability

### Benefits of Venting

- Contamination control
- Controlled air/gas exchange rates
- Cost savings
- Design flexibility
- High permeability rates
- Higher throughput; increased fill rates
- Increased system reliability
- Parts remain free of corrosion
- Pressure equalization
- Reactive surfaces are not poisoned
- Sensing surfaces are not fouled
- Short circuits are prevented
- Temperature stabilization



Emflon® PTFE Membrane

### Specifications

#### Dimensions

Master roll: 10 in. (25.4 cm) x 300 ft. (91.44 m)  
to 1000 ft. (304.8 m)  
Roll size: Dependent upon slit width

*Custom slits available. Please contact a Pall representative for additional information.*

#### Packaging

Core: Cores are 3.0 in. (7.62 cm) I.D., PVC  
Packaging: Shrink-wrap around side of each roll

## Applications and Media Requirements by Industry<sup>1</sup>

### Automotive

Application	Media Requirements
<ul style="list-style-type: none"><li>• ABS brake systems</li><li>• Air conditioning pressure sensors / fuel tank pressure sensors</li><li>• Electronic control units</li><li>• Electric window motors / windshield wiper motors</li><li>• Fuel tanks / gas caps / roll-over valve protection</li><li>• Lighting assemblies – headlight, tail light</li></ul>	<ul style="list-style-type: none"><li>• Able to pass tests mandated by government and OEMs</li><li>• Easily die cut and sealed</li><li>• Good chemical resistance</li><li>• High mechanical strength</li><li>• High permeability</li><li>• High repellency to gasoline and other automotive fluids</li><li>• High vapor transport rate</li><li>• Low back pressure</li></ul>

### Electronics

Application	Media Requirements
<ul style="list-style-type: none"><li>• Acoustically transparent microphone protection</li><li>• Enclosure vents</li><li>• Marine electronic enclosures</li><li>• Micro-Electro-Mechanical Systems (MEMS) protection</li><li>• Portable electronic devices</li><li>• Transducer protection</li></ul>	<ul style="list-style-type: none"><li>• Easily die cut and sealed</li><li>• Good chemical resistance</li><li>• High acoustic transparency</li><li>• High water intrusion pressure</li><li>• Low back pressure</li><li>• Resistant to salt water</li><li>• Resistant to UV</li><li>• Thin or low profile</li></ul>

### Food and Beverage

Application	Media Requirements
<ul style="list-style-type: none"><li>• <b>Food packaging:</b> processing, packaging moisture protection, shipping</li><li>• <b>Liquid containers:</b> filling, packaging, shipping</li><li>• Thermal vents</li><li>• Vented cap and lid liners</li></ul>	<ul style="list-style-type: none"><li>• Easily customized for unusual shapes</li><li>• Easily die cut and sealed</li><li>• Food contact certification</li><li>• Food contact regulation compliance</li><li>• Good chemical resistance</li><li>• Good mechanical strength</li><li>• Good repellency</li><li>• High permeability</li><li>• High temperature resistance</li></ul>

### Other Industrial Applications<sup>2</sup>

- Cap and lid vents
- Moisture barriers
- Packaging vents
- Reactive product packaging
- Sensor protection

<sup>1</sup> This table is meant only as a guide. Any applicable regulations and requirements can differ from country to country. Pall should be contacted as appropriate.

<sup>2</sup> Pall's Emflon PTFE membrane is used in a variety of Industrial markets and applications. For applications not listed above, please contact your local Pall representative.

## Chemical Compatibility – Emflon PTFE Membrane is Resistant to the Following Chemicals<sup>3</sup>

### Acids

- Acetic acid - glacial
- Acetic acid - 10%
- Acetic acid - 30%
- Acetic acid - 90%
- Hydrochloric acid - conc. (35%)
- Hydrochloric acid - 6N (20%)
- Hydrochloric acid - 1N (3.3%)
- Nitric acid - conc. (67%)
- Nitric acid - 6N (27%)
- Sulfuric acid - conc. (96%)
- Sulfuric acid - 6N (16%)

### Alcohols

- Amyl alcohol
- Benzyl alcohol
- Butanol
- Ethanol
- Isopropanol
- Methanol

### Aromatic Hydrocarbons

- Benzene
- Toluene
- Xylene

### Bases

- Ammonium hydroxide - 3N (5.7%)
- Ammonium hydroxide - 6N (11.4%)
- Potassium hydroxide - 3N (15%)
- Sodium hydroxide - 3N (11%)
- Sodium hydroxide - 6N (22%)

### Esters

- Amyl acetate
- Butyl acetate
- Cellosolve acetate
- Ethyl acetate
- Isopropyl acetate
- Methyl acetate

### Ethers

- Ethyl ether
- Tetrahydrofuran
- Tetrahydrofuran/water (50/50 v/v)

### Glycols

- Ethylene glycol
- Glycerol
- Propylene glycol

### Halogenated Hydrocarbons

- Carbon tetrachloride
- Chloroform
- Ethylene dichloride
- Methylene chloride
- Tetrachloroethylene

### Ketones

- Acetone
- Cyclohexanone
- Methyl ethyl ketone
- Methyl isobutyl ketone

### Miscellaneous

- 18 megohm water
- Acetonitrile
- Dimethyl formamide
- Dimethyl sulfoxide
- Formaldehyde - 37%
- Formaldehyde - 4%
- Hexane - dry
- Kerosene
- Pyridine

### Oils

- Cottonseed
- Peanut

<sup>3</sup> This chart is intended only as a guide. Accuracy cannot be guaranteed. Users should verify chemical compatibility with a specific membrane under actual use conditions. Chemical compatibility with a specific membrane under actual use conditions is affected by many variables including temperature, pressure, concentration, purity, and various chemical combinations that prevent complete accuracy.

## Sealing Method Compatibility<sup>4</sup>

(• Compatible)

Material	Method					
	Adhesive Sealing	Heated Dies	Insert Molding	Mechanical Seal	Radio Frequency	Ultrasonic
ABS	•	•	•	•	•	•
Acrylic	•	•		•	•	
EVA		•	•	•	•	•
Latex	•			•		
Natural Rubber	•			•		
Poly Carbonate	•	•		•	•	•
Polyester (PBT)	•	•		•		•
Polyethylene		•	•	•		
Polypropylene		•	•	•		•
PVC		•	•	•	•	
Silicone	•					
Styrene		•	•	•		•
Synthetic Rubber	•			•		
Urethane (thermoplastic)	•		•	•		•

<sup>4</sup> This information is intended to serve only as a guide. Users should verify the conditions appropriate to their specific use. Additional information on Pall materials is available online at: [www.pall.com/industrialmaterials.asp](http://www.pall.com/industrialmaterials.asp)

## Performance<sup>5</sup>

Part Number	Description	Rating (um)	Support Type	Suggested Maximum Operating Temp. (C°/F°)	Oil Rating (1-8) <sup>6</sup>	Minimum Thickness (mils)	Maximum Thickness (mils)	Minimum Water Breakthrough (psi)	Maximum Gurley Air Flow (sec/100cc)
PTF002LHOA	PTFE Laminated 0.02 LHA	0.02	Spun bonded non-woven polyester	190/375	1	4.8	8.2	230	75
PTF002LROA	PTFE Laminated 0.02 LRA	0.02	Spun bonded non-woven polyester	250/482	3	5.1	12.6	209	84.7
PTF020LDOA	PTFE Laminated 0.2 LDA	0.2	Woven polypropylene	125/257	1	7.0	9.7	79	23.7
PTF020LHOA	PTFE Laminated 0.2 LHA	0.2	Spun bonded non-woven polyester	190/375	1	5.5	9.8	69	29
PTF020LHOP	PTFE Laminated 0.2 LHOP	0.2	Spun bonded non-woven polyester	190/375	1	8.0	13.0	80	23
PTF020LROA	PTFE Laminated 0.2 LRA	0.2	Spun bonded non-woven polyester	250/482	2	4.5	8.5	80	16
PTF020LTOA	PTFE Laminated 0.2 LTA	0.2	Calendered non-woven polypropylene	121/250	1	7.0	11.0	85	16
PTF045LDOA	PTFE Laminated 0.45 LDA	0.45	Woven polypropylene	125/257	1	7.5	10.1	26	9.4
PTF045LHOP	PTFE Laminated 0.45 LHOP	0.45	Spun bonded non-woven polyester	190/375	1	7.8	10.6	30	17
PTF045LROA	PTFE Laminated 0.45 LRA	0.45	Spun bonded non-woven polyester	250/482	1	5.6	10.0	28	8.7
PTF045LROP	PTFE Laminated 0.45 LROP	0.45	Spun bonded non-woven polyester	250/482	1	7.5	11.0	40	10.9
PTF045LTOA	PTFE Laminated 0.45 LTA	0.45	Calendered non-woven polypropylene	121/250	1	6.7	12.5	30	11
PTF100LHOP	PTFE Laminated 1.0 LHOP	1	Spun bonded non-woven polyester	190/375	1	7.0	11.0	20	11.1
PTF100LDOA	PTFE Laminated 1.0 LDA	1	Woven polypropylene	125/257	1	5.0	9.2	15	6
PTF100LROA	PTFE Laminated 1.0 LRA	1	Spun bonded non-woven polyester	250/482	1	4.0	8.5	22	5.6
PTF100LTOA	PTFE Laminated 1.0 LTA	1	Calendered non-woven polypropylene	121/250	1	6.1	11.4	15	5

<sup>5</sup> Maximum operating temperature is a guideline. For continuous operation, customer should test materials under application conditions.

<sup>6</sup> Hydrocarbon resistance test was performed according to AATCC Test Method 118-1989.

## Part Numbers/Ordering Information - Laminated PTFE<sup>7</sup>

PTF ■ L ● ▼ - ◆

(e.g., PTF002LH0A-0001)

Code ■	Pore Size (µm)
002	0.02
010	0.1
020	0.2
045	0.45
100	1.0

Code <sup>8</sup> ●	Substrate
R0	Spun bonded non-woven polyester
H0	Spun bonded non-woven polyester
D0	Woven polypropylene
T0	Calendered non-woven polypropylene

Code ▼	Bond Type
A	Adhesive
P	FDA Polyester/Polyester sheath and core

<sup>7</sup> Unsupported PTFE is available upon request. Please contact your local Pall representative.

<sup>8</sup> '0' represents standard material. Other versions may be available. Contact your Pall representative for more information.



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