

## Versapor® R Membrane

### Description

The Versapor R membrane is an acrylic copolymer membrane cast on a nonwoven nylon support. It is Repel™ treated for superior oleophobicity and hydrophobicity. The membrane is also available in a thinner version, on a nonwoven polyester support.

- Oleophobic/hydrophobic
- Excellent air permeability
- Broad chemical compatibility
- Compatible with a variety of sealing methods
- Excellent handling properties
- Manufacture is carried out according to procedures within a quality management system certified to ISO9001

The Versapor R membrane is repellent to a variety of fluids including, but not limited to, the following.

- Body fluids
- Lipid solutions
- Water
- Oils
- Organic solvents
- Gasoline
- Starter fluid
- Brake fluid
- Transmission fluid
- Steering fluid
- Wiper fluid

### Specifications

#### Dimensions

Custom roll, sheet, and disc sizes available

*Please contact your local Pall representative for more information.*

#### Packaging

Core: 7.6 cm (3.0 in) ID, PVC

Packaging: For widths up to 22.86 cm (9.0 in), shrink-wrap around each roll; for widths 22.86 cm (9.0 in) and larger, bag around each roll



*Versapor® R membrane*

### Qualification Services

Pall Corporation offers qualification services to support regulatory compliance.

### 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 protection
- Short circuits are prevented
- Temperature stabilization

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

### Automotive

#### Application

- ABS brake systems
- Air conditioning pressure sensors
- Electric motors: windows, windshield wipers
- Electronic control units
- Fuel tanks: pressure sensors, gas caps, roll-over valve protection
- Lighting assemblies: headlight, taillight
- Powertrain control units

#### Media Requirements

- Easily die cut and sealed
- Good chemical resistance
- High mechanical strength
- High permeability
- High repellency to gasoline and other automotive fluids
- High vapor transport rate
- Low back pressure

### Electronics

#### Application

- Acoustically transparent microphone protection
- Enclosure vents
- Micro-Electro-Mechanical Systems (MEMS) protection
- Portable electronic devices
- Transducer protectors
- Vented packaging

#### Media Requirements

- Easily die cut and sealed
- Good chemical resistance
- High acoustic transparency
- High water intrusion pressure
- Low back pressure
- Resistant to salt water
- Resistant to UV
- Thin or low profile

### Food and Beverage

#### Application

- Food packaging: processing, moisture protection, shipping
- Liquid bottling: filling, packaging, shipping
- Thermal vents
- Vented cap and lid liners

#### Media Requirements

- Easily customized for unusual shapes
- Easily die cut and sealed
- Good chemical resistance
- Good mechanical strength
- Good repellency
- High permeability
- High temperature resistance

### 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 intended to serve as a guide only. Since applicable regulations and requirements may differ from country-to-country, please contact your local Pall representative for specific information.

<sup>2</sup> The Versapor R membrane is used in a variety of Industrial markets and applications. For information about those not listed above, please contact your local Pall representative.

## Chemical Resistance<sup>3,4</sup>

### Acids

- Acetic acid - 10%
- Acetic acid - 30%
- Hydrochloric acid - 1N (3.3%)

### Alcohols

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

### 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

### Ethers

- Ethyl ether
- Tetrahydrofuran/water (50/50 v/v): limited resistance
- Isopropyl ether

### Glycols

- Ethylene glycol
- Glycerol
- Propylene glycol

### Halogenated Hydrocarbons

- Carbon tetrachloride
- Ethylene dichloride
- Tetrachloroethylene
- Freon TF: limited resistance
- Genesolv D
- Perchloroethylene
- Trichloroethylene

### Ketones

- Methyl isobutyl ketone

### Miscellaneous

- 18 MOhm water
- Acetonitrile
- Formaldehyde - 37%
- Formaldehyde - 4%
- Gasoline
- Hexane - dry
- JP-4
- Kerosene
- Pyridine: limited resistance
- Skydrol 500
- Water

### Oils

- Cottonseed
- Peanut
- Sesame

<sup>3</sup> The Versapor R membrane has demonstrated resistance to the chemicals on this list.

<sup>4</sup> This table is intended to serve as a guide only. Accuracy cannot be guaranteed. Users are responsible for verifying chemical compatibility under their own conditions of use. Chemical compatibility is affected by many variables including temperature, pressure, concentration, and chemical purity.

## Sealing Method Compatibility<sup>5</sup>

### (• Compatible)

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

<sup>5</sup> This table is intended to serve as a guide only. Accuracy cannot be guaranteed. Users should verify chemical compatibility with their specific membrane under actual conditions. Additional information about Pall materials is available online at [www.pall.com/industrialmaterials](http://www.pall.com/industrialmaterials).

## Performance<sup>6</sup>

Part Number	Description	Rating (um)	Support Type	Suggested Maximum Operating Temp. C° (F°)	Oil Rating (1-8) <sup>7</sup>	Minimum Thickness (mils)	Maximum Thickness (mils)	Water Intrusion psi (bar)	Air Flow Rate
80273	Versapor 200R	0.2	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 26.0 (1.79)	≥ 4.7 <sup>8</sup>
80274	Versapor 450R	0.45	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 16.0 (1.10)	≥ 16.6 <sup>8</sup>
80275	Versapor 800R	0.8	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 8.0 (0.55)	≥ 43.5 <sup>8</sup>
80276	Versapor 1200R	1.2	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 6.0 (0.41)	≥ 37.8 <sup>9</sup>
80256	Versapor 3000R	3.0	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 3.0 (0.21)	≥ 60.0 <sup>9</sup>
80277	Versapor 5000R	5.0	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 2.0 (0.14)	≥ 88 <sup>9</sup>
80278	Versapor 10000R	10.0	Nonwoven nylon	240 (464)	8	6.0	12.0	≥ 0.5 (0.03)	≥ 113.0 <sup>9</sup>

<sup>6</sup> The maximum operating temperatures listed are guidelines only. Accuracy cannot be guaranteed. Users should verify maximum temperature during continuous operation under actual conditions.

<sup>7</sup> Hydrocarbon resistance test was performed according to AATCC Test Method 118-1989.

<sup>8</sup> Air flow rate units: Lpm / 3.7 cm<sup>2</sup> @ 13.5 psi (0.9 bar)

<sup>9</sup> Air flow rate units: Lpm / 3.7 cm<sup>2</sup> @ 5.0 psi (0.34 bar)

## Ordering Information

For ordering information, or to place an order, please contact your local Pall representative.



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