









Description

Limitless Shieldings polydimethylsiloxane, or PDMS, Membranes are high purity, high precision PDMS films which can be used as a gas permeable liquid seal. The film shows a maximum thickness variation across the total width less than $\pm 5\%$.

Applications

-  Medical and Lab applications
-  Water purification
-  Electrics, Electronics & Lighting
-  Electroactive Polymers (EAPs)
-  Film & Foil Converting
-  Renewable Energies
-  Functional membranes
-  Optical layers / interlayers

Technical Data (20-400microns)

Property	Condition	Value	Method
Density	-	1.07 g/cc	-
Dielectric strength	-	80 - 100 kV/mm	-
Volume resistivity	-	10 ¹⁴ Ohm.cm	IEC 60093
Hardness Shore A	-	32°	DIN ISO 48-4
Tensile strength	-	6.0 N/mm ²	ISO 37 type 1
Elongation at break	-	450 %	ISO 37 type 1
Compression Set	22 h 100 °C	5 %	DIN ISO 815-1 type B method A
Gas permeability (selectively)	-	CO ₂ /N ₂ = 10:1	DIN 53536
Water vapour permeability	24 h 20 µm	3000 g/m ²	JIS 1099 A1
Water vapour permeability	24 h 50 µm	1200 g/m ²	JIS 1099 A1
Water vapour permeability	24 h 100 µm	800 g/m ²	JIS 1099 A1
Operating temperature	-	-45 - 175 °C	-
Glass Transition Temperature	-	126 °C	-
Tear strength	-	10 N/mm	ASTM D 624 B

Technical Data (>500microns)





Property	Condition	Value	Method
Density	-	1.07 g/cc	-
Dielectric strength	-	80 - 100 kV/mm	-
Volume resistivity	-	10 ¹⁴ Ohm.cm	IEC 60093
Hardness Shore A	-	50-70	ASTM D2240
Tensile strength	-	10.5 Mpa	ISO 37 type 1
Elongation at break	-	725 %	ISO 37 type 1
Compression Set	22 h 100 °C	5 %	DIN ISO 815-1 type B method A
Gas permeability (selectively)	-	CO ₂ /N ₂ = 10:1	DIN 53536
Water vapour permeability	24 h 20 µm	3000 g/m ²	JIS 1099 A1
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Water vapour permeability	24 h 100 µm	800 g/m ²	JIS 1099 A1
Operating temperature	-	-45 - 175 °C	-
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Gas Permeability Rates





GAS NAME	FORMULA	PERMEABILITY COEFFICIENT (Barrer)*	GAS NAME	FORMULA	PERMEABILITY COEFFICIENT (Barrer)*
Nitrogen	N ₂	280	Ammonia	NH ₃	5900
Carbon monoxide	CO	340	Nitrogen dioxide	NO ₂	7500
Oxygen	O ₂	600	Octane	n-C ₈ H ₁₈	8600
Nitric oxide	NO	600	Butane	n-C ₄ H ₁₀	9000
Argon	Ar	600	Toluene	C ₇ H ₈	9130
Hydrogen	H ₂	650	Hexane	n-C ₆ H ₁₄	9400
Helium	He	350	Hydrogen sulfide	H ₂ S	10000
Methane	CH ₄	950	Benzene	C ₆ H ₆	10800
Ethylene	C ₂ H ₄	1350	Methanol	CH ₃ OH	13900
Ethane	C ₂ H ₆	2500	Sulfur dioxide	SO ₂	15000
Carbon dioxide	CO ₂	3250	Pentane	n-C ₅ H ₁₂	20000
Propane	C ₃ H ₈	4100	Water	H ₂ O	36000
Nitrous oxide	N ₂ O	4350	Carbon disulfide	CS ₂	90000
Acetone	C ₃ H ₆ O	5860			

*1 Barrer = 10⁻¹⁰ cm³ (STP) · cm / cm² · s · cm-Hg Unless otherwise noted, permeabilities are measured and reported at 25C (RTP) and not (STP) From: THIN SILICONE MEMBRANES-THEIR PERMEATION PROPERTIES AND SOME APPLICATIONS Annals of the New York Academy of Sciences, vol. 146, issue 1 Materials in , pp. 119-137 W. L. Robb









Key Properties

-  High and selectively gas and water vapour permeable
-  High dielectric strength combined with a high specific resistivity
-  Highly Transparent
-  Stable over a wide operating temperature

Availability

-  Widths of 250mm.
-  Thicknesses of 20µm, 50µm, 100µm, 200µm, 300µm and 400µm
-  Thicker, harder options 500 to 3000 microns available
-  Sheeting supplied in Rolls in multiples of 1m x 250mm.

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