LAYFIELD GEOSYNTHETICS

TECHNICAL SPECIFICATIONS

VAPORFLEX® PREMIUM – UNDERSLAB VAPOR/GAS BARRIER

VaporFlex® Premium (VP) 20 mil is a seven-layer coextruded vapor/gas barrier made using high-quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength and superior resistance to gas and moisture transmission. VP is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon, and other harmful VOCs. They are tested and verified for unsurpassed protection against BTEX, HS, TCE, PCE, Methane, Radon, other toxic chemicals, and odors.

VaporFlex® Premium is a multi-layer gas barrier manufactured with the latest EVOH barrier technology to mitigate hazardous vapor intrusion from damaging indoor air quality and the safety and health of building occupants. Underslab vapor/gas barrier is one of the most effective underslab gas barriers in the building industry today, far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B, and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements.

Material Properties	February **2024**		**VaporFlex® Premium**	
	Properties	**Test Method**	**Imperial**	**Metric**
	Thickness (Nominal)		20 mil	0.51 mm
	Weight		102 lbs/MSF	498 g/m^2
	Classification	ASTM E 1745	CLASS A, B & C	
	[1]Tensile Strength	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
	Impact Resistance	ASTM D 1709	2600 grams	
	Permeance (New Material)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft^2-hr-in-Hg)	0.0064 Perms g/(24hr-m^2-mm Hg)
	Permeance (After Conditioning) (Same measurement as above permeance)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0053 0.0052 0.0064 0.0074
	WVTR	ASTM E 96 Procedure B	0.0040 grains/hr-ft^2	0.0028 gm/hr-m^2
	Benzene Permeance	See Note[2]	1.13 x 10^{-10} m^2/sec or 3.62 x 10^{-13} m/s	

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	Toluene Permeance	See Note[2]	1.57 x 10^{-10} m^2/sec or 1.46 x 10^{-13} m/s	
	Ethylbenzene Permeance	See Note[2]	1.23 x 10^{-10} m^2/sec or 3.34 x 10^{-14} m/s	
	M & P-Xylenes Permeance	See Note[2]	1.17 x 10^{-10} m^2/sec or 3.81 x 10^{-14} m/s	
	O-Xylene Permeance	See Note[2]	1.10 x 10^{-10} m^2/sec or 3.43 x 10^{-14} m/s	
	Hydrogen Sulfide	See Note[3]	1.92E^{-09} m/s	
	Trichloroethylene (TCE)	See Note[2]	7.66 x 10^{-11} m^2/sec or 1.05 x 10^{-14} m/s	
	Perchloroethylene (PCE)	See Note[2]	7.22 x 10^{-11} m^2/sec or 1.04 x 10^{-14} m/s	
	Radon Diffusion Coefficient	K124/02/95	< 1.1 x 10-13 m2/s	
	Methane Permeance	ASTM D 1434	3.68E^{-12} m/s Gas Transmission Rate (GTR): 0.32 mL/m^2•day•atm	
	Maximum Static Use Temperature		180°F	82°C
	Minimum Static Use Temperature		-70°F	-57°C

Notes:

[1] Tests are an average of machine and transverse directions.

[2] Aqueous Phase Film Permeance. Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McWatters and Rowe, Journal of Geotechnical and Geoenvironmental Engineering© ASCE/September 2015. (Permeation is the Permeation Coefficient adjusted to actual film thickness - calculated at 1 kg/m^3.) The study used to determine PCE and TCE is titled: Evaluation of diffusion of PCE & TCE through high performance geomembranes by Di Battista and Rowe, Queens University 8 Feb 2018.

[3] The study used to determine diffusion coefficients is titled: Hydrogen Sulfide (H_2S) Transport through Simulated Interim Covers with Conventional and Co-Extruded Ethylene-Vinyl Alcohol (EVOH) Geomembranes.