**PRODUCT DESCRIPTION**

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon, and other harmful VOCs. Tested and verified for unsurpassed protection against BTEX, HS, TCE, PCE, methane, radon, other toxic chemicals and odors.

VaporBlock® Plus™ 20 multi-layer gas barrier is 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. VBP20 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. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001 Certified Management System.

**PRODUCT USE**

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building’s interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

**SIZE & PACKAGING**

VaporBlock® Plus™ 20 is available in 10’ x 150’ rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.
**VAPORBLOCK® PLUS™ VBP20**

**UNDER-SLAB VAPOR / GAS BARRIER**

<table>
<thead>
<tr>
<th>PROPERTIES</th>
<th>TEST METHOD</th>
<th>IMPERIAL</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td>White/Gold</td>
<td></td>
</tr>
<tr>
<td><strong>Thickness, Nominal</strong></td>
<td></td>
<td>20 mil</td>
<td>0.51 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td></td>
<td>102 lbs/MSF</td>
<td>498 g/m²</td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td>ASTM E 1745</td>
<td>CLASS A, B &amp; C</td>
<td></td>
</tr>
<tr>
<td><strong>Tensile Strength</strong></td>
<td>ASTM E 154</td>
<td>58 lbf</td>
<td>102 N</td>
</tr>
<tr>
<td><strong>Impact Resistance</strong></td>
<td>ASTM D 1709</td>
<td>2600 g</td>
<td></td>
</tr>
<tr>
<td><strong>Permeance (New Material)</strong></td>
<td></td>
<td>0.0098 Perms</td>
<td>0.0064 Perms</td>
</tr>
<tr>
<td><strong>Permeance (After Conditioning)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WVTR</strong></td>
<td></td>
<td>0.0040 grains/hr-ft²</td>
<td>0.0028 gm/hr-m²</td>
</tr>
<tr>
<td><strong>Benzene Permeance</strong></td>
<td>See Note 6</td>
<td>1.13 x 10⁻¹² m²/sec</td>
<td>3.62 x 10⁻¹³ m/s</td>
</tr>
<tr>
<td><strong>Toluene Permeance</strong></td>
<td>See Note 6</td>
<td>1.57 x 10⁻¹² m²/sec</td>
<td>1.46 x 10⁻¹³ m/s</td>
</tr>
<tr>
<td><strong>Ethylbenzene Permeance</strong></td>
<td>See Note 6</td>
<td>1.23 x 10⁻¹² m²/sec</td>
<td>3.34 x 10⁻¹³ m/s</td>
</tr>
<tr>
<td><strong>M &amp; P-Xylenes Permeance</strong></td>
<td>See Note 6</td>
<td>1.17 x 10⁻¹² m²/sec</td>
<td>3.81 x 10⁻¹³ m/s</td>
</tr>
<tr>
<td><strong>O-Xylenes Permeance</strong></td>
<td>See Note 6</td>
<td>1.10 x 10⁻¹² m²/sec</td>
<td>3.43 x 10⁻¹⁴ m/s</td>
</tr>
<tr>
<td><strong>Hydrogen Sulfide</strong></td>
<td>See Note 9</td>
<td>1.92E⁻⁰⁹ m/s</td>
<td></td>
</tr>
<tr>
<td><strong>Tetrachloroethylene (TCE)</strong></td>
<td>See Note 6</td>
<td>7.66 x 10⁻¹¹ m²/sec</td>
<td>1.05 x 10⁻¹⁴ m/s</td>
</tr>
<tr>
<td><strong>Perchloroethylene (PCE)</strong></td>
<td>See Note 6</td>
<td>7.22 x 10⁻¹¹ m²/sec</td>
<td>1.04 x 10⁻¹⁴ m/s</td>
</tr>
<tr>
<td><strong>Radon Diffusion Coefficient</strong></td>
<td>K124/02/95</td>
<td>&lt; 1.1 x 10⁻¹⁴ m²/s</td>
<td></td>
</tr>
<tr>
<td><strong>Methane Permeance</strong></td>
<td>ASTM D 1434</td>
<td>3.68E⁻¹² m³/m²/day atm</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Static Use Temperature</strong></td>
<td></td>
<td>180° F</td>
<td>82° C</td>
</tr>
<tr>
<td><strong>Minimum Static Use Temperature</strong></td>
<td></td>
<td>- 70° F</td>
<td>- 57° C</td>
</tr>
</tbody>
</table>

Note: Tests are an average of machine and transverse directions. Raven Industries performs seam testing at 20” per minute. Aqueous Phase Film Permeance. Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McAlester and Rowe, Journal of Geotechnical and Geoenvironmental Engineering© ASCE/September 2006. 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, Queen's University 8 Feb 2018. The study used to determine diffusion coefficients is titled: Hydrogen Sulfide (H₂S) Transport through Simulated Interim Covers with Conventional and Co-Extruded Ethylene-Vinyl Alcohol (EVOH) Geomembranes.

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed. Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located at www.ravenefd.com. ASTM E-1643 also provides general installation information for vapor retarders.

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

RAVEN ENGINEERED FILMS
P.O. Box 5107 Sioux Falls, SD 57117-5107
Ph: +1 (605) 335-0174 • TF: +1 (800) 635-3456
efdsales@ravenind.com
www.ravenefd.com

© 2018 RAVEN INDUSTRIES INC. All rights reserved.