

## PRODUCT NAME

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VaporForce Class A Construction Film – 10 Mil

## PRODUCT DESCRIPTION

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### BASIC USE

VaporForce - 10 Mil is a unique high strength polyolefin based under-slab vapor barrier specifically designed for preventing moisture migration through concrete slabs on-grade. VaporForce - 10 Mil reduces water vapor emission transfer and moisture migration from entering the building envelope on commercial, industrial and residential applications. VaporForce - 10 Mil controls condensation, mold, mildew, degradation and prevents costly flooring failures and damage to moisture sensitive furnishings within a building's interior. VaporForce - 10 Mil may be used to reduce radon and methane gas migration and is resistant to other adverse soil conditions.

## COMPOSITION & MATERIALS

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VaporForce - 10 Mil is manufactured using the latest generation of prime virgin (non-recycled) polyolefin resin, constructed in a multi-layer plastic extrusion process and engineered with physical properties that maintain long-term performance. The multi-layer extrusion process creates an excellent balance of high puncture and tensile strength while maintaining very low water vapor permeance characteristics. This product maintains (long-term) high performance and will not biodegrade/ decompose when exposed to various soil types and below slab conditions.

### SIZE

Standard Size: 14'x 210' rolls

### WEIGHT

Approximately 141 lbs per roll

## BENEFITS

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- Manufactured using multi-layer extrusion technology from virgin polyolefin resin
- Maintains long-term performance after exposure to adverse soil conditions
- Exceeds ASTM E 1745 "Class A" guidelines
- High puncture and tensile strength
- Greatly reduces moisture migration through slab-on-grade applications

## TECHNICAL DATA

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### APPLICABLE STANDARDS

American Society for Testing & Materials (ASTM)

**ASTM E 1745** Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs

**ASTM E 154** Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls or as Ground Cover

**ASTM D 1709** Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method

**ASTM D 882** Standard Test Method for Tensile Properties of Thin Plastic Sheeting

**ASTM F 1249** Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

**ASTM E 96** Standard Test Methods for Water Vapor Transmission of Materials

**ASTM E 1643** Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

**ACI 302.2R-06** Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

**NOTE:** All VaporForce - 10 Mil testing is done by accredited, third-party testing agencies following stringent industry guidelines and testing standards.

### ENVIRONMENTAL CONSIDERATIONS

VaporForce - 10 Mil can aid in controlling soil gas and poisons such as methane and radon.

### PHYSICAL PROPERTIES

VaporForce - 10 Mil exceeds all ASTM E 1745 "Class A" requirements for under-slab vapor retarders.

## INSTALLATION

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### SUB-GRADE PREPARATION

Level and tamp or roll granular base as specified by the architectural or structural drawings.

### VAPOR BARRIER PLACEMENT

Unroll VaporForce - 10 Mil with the longest dimension parallel with the direction of the pour. Unfold to full width.

Extend VaporForce - 10 Mil over footings and seal to foundation wall, grade beam or slab at an elevation consistent with the top of the slab or terminate at impediments, such as water stops or dowels. Use VaporForce - 10 Mil Double Bond Tape or a combination of VaporForce - 10 Mil Double Bond Tape and VaporForce - 10 Mil Vapor Tape at such terminations.

**INSTALLATION CONTINUED**

**SEAMS AND PENETRATIONS**

Seal around pipes, support columns, or any other penetrations, with Viper VaporPatch, VaporCheck Mastic, or at a minimum, a combination of VaporForce - 10 Mil 1a-mil and Viper Vapor Tape. Doing so creates a monolithic membrane between the surface of the slab and moisture sources below.

Holes or openings through VaporForce - 10 Mil should be effectively sealed with Viper Vapor Tape, Viper VaporPatch or VaporCheck Mastic to maintain the integrity of the vapor barrier. Overlap joints a minimum of six inches, Seal overlap together with Viper Vapor Tape and/or Viper Double Bond Tape.

Avoid driving stakes through VaporForce - 10 Mil. If this cannot be avoided, each individual hole must be repaired.

If a cushion or blotter layer is required in the design between the vapor barrier and the slab, additional care should be taken, especially if sharp crushed rock is used. Washed rock will provide less chance of damage during placement.

These are general installation instructions. Instructions on architectural or structural drawings should be reviewed and followed. Detailed installation instructions are available by request.

**PROTECTION**

When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect VaporForce - 10 Mil. Carelessness during installation can damage the most puncture-resistant vapor barriers.

<b>PROPERTIES TEST PROCEDURE</b> (Independent Test Facility)	<b>TEST METHOD APPLICABLE STANDARDS</b>	<b>RESULTS IP UNITS</b>
THICKNESS (NOMINAL)	N/A	10-mil
WEIGHT	N/A	141 lbs
CLASSIFICATION	ASTM E 1745	EXCEEDS CLASS A, B, C
PUNCTURE RESISTANCE	ASTM D 1709 METHOD B	3,210 grams
PUNCTURE RESISTANCE	ASTM E 154 SEC. 10	73 lbs
TENSILE STRENGTH	ASTM E 154	61 lbsf/in
TENSILE STRENGTH	ASTM D 638	3,017 PSI
OPERATING TEMPERATURE RANGE	N/A	-70' F to 180' F
WATER VAPOR PERMEANCE (NEW MATERIAL)	ASTM F 1249	0.0073 perms*
WATER VAPOR TRANSMISSION RATE (WVTR)	ASTM F 1249	0.0228 perms*
WATER VAPOR PERMEANCE (after wetting, drying and soaking)	ASTM E 1 54 SEC. 8 (ASTM F 1249)	0.0069 perms*
WATER VAPOR PERMEANCE (after heat conditioning)	ASTM E 154 SEC. 11 (ASTM F 1249)	0.0070 perms*
WATER VAPOR PERMEANCE (after low temperature conditioning)	ASTM E 154 SEC. 12 (ASTM F 1249)	0.0055 perms*
WATER VAPOR PERMEANCE (after soil organism exposure)	ASTM E 154 SEC.13 (ASTM F 1249)	0.0058 perms*
RADON DIFFUSION COEFFICIENT	KI 24-02-95	7.2 x 10 <sup>-12</sup> m <sup>2</sup> /sec
METHANE PERMEANCE	ASTM D1434	3.34E <sup>-14</sup> mol/m <sup>2</sup> *s*Pa

\*1 perm = 1 grain/h-ft<sup>2</sup>·in.Hg

DISCLAIMER: To the best of our knowledge, the specification chart lists typical property values and are intended as guides only, not as specification limits. FullForce makes no warranties as to the fitness for a specific use or merchantability of products referred to, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.