VIPER® II

10-MIL VAPOR BARRIER
ASTM E 1745 "CLASS A"

SPECIFICATION INFORMATION VAPOR RETARDERS DIVISIONS: 033000, 072600

Revised: 09-21-12

1.0 PRODUCT NAME

VIPER® VAPORCHECK® II 10-mil
ASTM E 1745 "Class A"
Under-Slab Vapor Barrier

2.0 MANUFACTURER

InsulationSolutions®

Insulation Solutions Inc.
401 Truck Haven Road
East Peoria, IL 61611

Engineering Assistance
Toll Free: 866-698-6562
Fax: 309-698-0065
www.insulationsolutions.com

3.0 PRODUCT DESCRIPTION

3.1 Basic Use:

VIPER® VAPORCHECK® II 10-mil is a unique high strength polyolefin based under-slab vapor barrier specifically designed for preventing moisture migration through concrete slabs-on-grade. **VIPER® VAPORCHECK® II 10-mil** reduces water vapor emission transfer and moisture migration from entering the building envelope on commercial, industrial and residential applications. **VIPER® VAPORCHECK® II 10-mil** controls condensation, mold, mildew, degradation and prevents costly flooring failures and damage to moisture sensitive furnishings within a building's interior.

VIPER® VAPORCHECK® II 10-mil may be used to reduce radon and methane gas migration and is resistant to other adverse soil conditions.

3.2 Composition & Materials:

VIPER® VAPORCHECK® II 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. The product will NOT biodegrade/decompose and maintains (long term) high performance when exposed to various soil types and below slab conditions.

3.3 Product Dimensions & Weight:

VIPER® VAPORCHECK® II 10-mil is available in 2940 sq. ft. rolls (14' X 210'). Each roll weighs approximately 140 lbs.

3.4 Benefits:

- 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 & tensile strength
- Resistant to alkali salts, moisture & other soil degrading chemicals
- Greatly reduces moisture migration through slab-on-grade applications

4.0 TECHNICAL DATA

4.1 Applicable Standards

- American Society for Testing & Materials (ASTM)
- American Concrete Institute (ACI)

- ***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 D 638*** *Standard Test Method for Tensile Properties of Plastics*
- ***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 Installation 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 **VIPER® VAPORCHECK® II 10-mil** testing is done by accredited, third-party testing agencies following stringent industry guidelines and testing standards.

PROPERTIES	TEST METHOD	VIPER® VAPORCHECK® II 10-mil	
Test Procedure - Independent Test Facility	*Applicable Standards*	*IP Units*	*SI Units*
Thickness, Nominal		10-mil	0.254 mm
Weight Per Roll		140 lbs	63.5 kg
Classification	ASTM E 1745	EXCEEDS CLASS A, B & C	
Tensile Strength	ASTM D 882	55 lbf/in	9.7 kN/m
Tensile Strength	ASTM D 638	3017 psi	20.8 MPa
Puncture Resistance	ASTM D 1709	2,747 grams	
Puncture Resistance	ASTM E 154 Sec. 10	73 lbs	33 kg
Operating Temperature Range		-70° F to 180° F	-57° C to 82° C
Water Vapor Permeance (New Material)	ASTM F 1249	0.0073 perms (U.S.)	0.0048 perms (Metric)
Water Vapor Transmission Rate (WVTR)	ASTM F 1249	0.005 grains/ft²*hr	0.0036 grams/m²*hr
Water Vapor Permeance (After Conditioning)			
Permeance after Wetting, Drying and Soaking	ASTM E 154 Sec. 8 (ASTM F 1249)	0.0069 perms (U.S.)	0.0045 perms (Metric)
Permeance after Heat Conditioning	ASTM E 154 Sec. 11 (ASTM F 1249)	0.0070 perms (U.S.)	0.0046 perms (Metric)
Permeance after Low Temperature Conditioning	ASTM E 154 Sec. 12 (ASTM F 1249)	0.0055 perms (U.S.)	0.0036 perms (Metric)
Permeance after Soil Organism Exposure	ASTM E 154 Sec. 13 (ASTM F 1249)	0.0058 perms (U.S.)	0.0038 perms (Metric)
Chemical Resistance	ASTM E 154	Unaffected	Unaffected
Life Expectancy	ASTM E 154	Indefinite	Indefinite

4.2 Environmental Considerations:

VIPER® VAPORCHECK® II 10-mil can aid in controlling soil gas and poisons such as methane, radon, sulfates and petroleum contaminated soil.

4.3 Physical Properties:

VIPER® VAPORCHECK® II 10-mil exceeds all ASTM E 1745 “Class A” requirements for under-slab vapor retarders.

5.0 INSTALLATION

5.1 Sub-Grade Preparation:

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

5.2 Vapor Barrier Placement:

Unroll **VIPER® VAPORCHECK® II 10-mil** with the longest dimension parallel with the direction of the pour. Unfold **VIPER® VAPORCHECK® II 10-mil** to full 14’ width.

Lap **VIPER® VAPORCHECK® II 10-mil** over the footings and seal to the vertical foundation walls with either **WHITE POLYETHYLENE TAPE**, **VIPER® DOUBLE BOND TAPE**, **VIPER® VAPORPATCH** or **VAPORCHECK® MASTIC**.

5.3 Seams and Penetrations:

Seal around pipes, support columns or any other penetration with **VIPER® VAPORPATCH**, **VAPORCHECK® MASTIC** or at minimum a combination of **VIPER® VAPORCHECK® II 10-mil** and **WHITE POLYETHYLENE TAPE**. Doing so creates a monolithic membrane between the surface of the slab and moisture sources below.

Holes or openings through **VIPER® VAPORCHECK® II 10-mil** should be effectively sealed with **WHITE POLYETHYLENE 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 **WHITE POLYETHYLENE TAPE** and/or **VIPER® DOUBLE BOND TAPE**.

5.4 Protection:

When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect **VIPER® VAPORCHECK® II 10-mil**. Carelessness during installation can damage the most puncture-resistant vapor barriers. Provide for additional protection in high-traffic areas.

Place standard reinforcing bar supports on **VIPER® VAPORCHECK® II 10-mil**. The strength characteristics of **VIPER® VAPORCHECK® II 10-mil** will help guard against possible punctures caused by reinforcing bar supports.

Avoid driving stakes through **VIPER® VAPORCHECK® II 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 very general installation instructions. Instructions on architectural or structural drawings should be reviewed and followed as well. Detailed installation instructions are available online at **www.viper2.com**. ASTM E 1643 also provides valuable installation information for under-slab vapor retarders.

6.0 AVAILABILITY & COST

VIPER® VAPORCHECK® II 10-mil is sold through construction supply houses across the United States and Canada.

VIPER® VAPORCHECK® II 10-mil current cost information can be obtained by calling our Corporate Office at 866-698-6562.

7.0 WARRANTY

INSULATION SOLUTIONS INC.® 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.

8.0 MAINTENANCE

VIPER® VAPORCHECK® II 10-mil requires no maintenance once installed.

9.0 TECHNICAL SERVICES

Technical Information and detailed test results can be obtained by calling our Corporate Office at 866-698-6562.

10.0 FILING SYSTEMS

Additional Information can be obtained by calling our Corporate Office at 866-698-6562 or online at **www.viper2.com**.

Note: To the best of our knowledge, the specification chart on page one lists typical property values and are intended as guides only, not as specification limits. Insulation Solutions Inc.® 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.