



# VIPER® II

## 10-MIL VAPOR RETARDER ASTM E 1745 “CLASS C”

### SPECIFICATION INFORMATION VAPOR RETARDERS DIVISIONS: 033000, 072600

Revised: 09-21-12

#### 1.0 PRODUCT NAME

**VIPER® VAPORCHECK® II 10-mil C**  
ASTM E 1745 “Class C”  
Under-Slab Vapor Retarder

#### 2.0 MANUFACTURER



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](http://www.insulationsolutions.com)

#### 3.0 PRODUCT DESCRIPTION

##### 3.1 Basic Use:

**VIPER® VAPORCHECK® II 10-mil C** is a unique polyolefin based under-slab vapor retarder specifically designed for preventing moisture migration through concrete slabs-on-grade. **VIPER® VAPORCHECK® II 10-mil C** reduces water vapor emission transfer and moisture migration from entering the building envelope on commercial, industrial and residential applications. **VIPER® VAPORCHECK® II 10-mil C** 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 C** 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 C** 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 C** 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 C” guidelines
- Good 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 C** testing is done by accredited, third-party testing agencies following stringent industry guidelines and testing standards.

| PROPERTIES  | TEST METHOD                      | VIPER® VAPORCHECK® II 10-mil C    |                                 |
|---|----------------------------------|-----------------------------------|---------------------------------|
| <i>Test Procedure - Independent Test Facility</i> | <i>Applicable Standards</i>      | <i>IP Units</i>                   | <i>SI Units</i>                 |
| Thickness, Nominal                                |                                  | 10-mil                            | 0.254 mm                        |
| Weight Per Roll                                   |                                  | 140 lbs                           | 63.5 kg                         |
| Classification                                    | ASTM E 1745                      | EXCEEDS CLASS C                   |                                 |
| Tensile Strength                                  | ASTM E 154 Sec. 9                | 23 lbf/in (MD), 16 lbf/in (TD)    | 4 kN/m (MD), 2.8 kN/m (TD)      |
| Elongation  | ASTM D 882                       | 815% (MD), 575% (TD)              |                                 |
| Puncture Resistance                               | ASTM D 1709                      | > 1,000 grams                     |                                 |
| Operating Temperature Range                       |                                  | -70° F to 180° F                  | -57° C to 82° C                 |
| Water Vapor Permeance (New Material)              | ASTM F 1249                      | 0.0178 perms (U.S.)               | 0.012 perms (Metric)            |
| Water Vapor Transmission Rate (WVTR)              | ASTM F 1249                      | 0.0078 grains/ft <sup>2</sup> *hr | 0.0054 grams/m <sup>2</sup> *hr |
| Water Vapor Permeance (After Conditioning)        |                                  |                                   |                                 |
| Permeance after Wetting, Drying and Soaking       | ASTM E 154 Sec. 8 (ASTM F 1249)  | ASTM E 1745 CLASS A               | ASTM E 1745 CLASS A             |
| Permeance after Heat Conditioning                 | ASTM E 154 Sec. 11 (ASTM F 1249) | ASTM E 1745 CLASS A               | ASTM E 1745 CLASS A             |
| Permeance after Low Temperature Conditioning      | ASTM E 154 Sec. 12 (ASTM F 1249) | ASTM E 1745 CLASS A               | ASTM E 1745 CLASS A             |
| Permeance after Soil Organism Exposure            | ASTM E 154 Sec. 13 (ASTM F 1249) | ASTM E 1745 CLASS A               | ASTM E 1745 CLASS A             |

#### 4.2 Environmental Considerations:

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

### 5.0 INSTALLATION

#### 5.1 Sub-Grade Preparation:

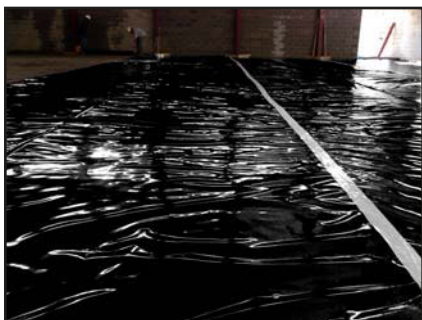
Level and tamp or roll granular base as specified by the architectural or structural drawings.



#### 5.2 Vapor Barrier Placement:

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

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

Avoid driving stakes through **VIPER® VAPORCHECK® II 10-mil C**. 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](http://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 C** is sold through construction supply houses across the United States and Canada.

**VIPER® VAPORCHECK® II 10-mil C** 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 C** 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](http://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.*

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