

# VB 225™

## MOISTURE VAPOR EMISSIONS REDUCTION SYSTEM

### DESCRIPTION

VB 225™ is a one-coat moisture vapor reduction system, consisting of a unique combination of 100% solid epoxy resins and other chemical compounds. VB 225™ is formulated to prevent floor failures on concrete slabs containing elevated levels of moisture vapor emission. VB 225™ has no upper limits for water vapor emissions; it resists moisture levels (100% RH) and a sustained pH of 14. VB 225™ is extremely dense with a perm rating of 0.05 grains/ft<sup>2</sup>/hr in Hg<sup>-1</sup>. The low perm rating makes VB 225™ perfect as a primer for virtually all types of flooring, especially low-permeance flooring, such as sheet goods, rubber tile, and epoxy coatings. VB 225™ exceeds ASTM F3010-13 (requirements for two-component, resin-based, membrane-forming, moisture mitigation systems for use under resilient floor coverings.)

VB 225™'s compliance with all state and federal VOC regulations with a VOC content of <10 g/l allows installation in sensitive areas, such as active hospitals, schools and grocery stores.

### APPLICATIONS

Formulated to treat new or existing concrete floors with moisture and/or alkaline conditions that prevent or compromise the installation of floor covering systems.

May be installed on concrete with moisture vapor emissions rates over 25+ lb/24hr/1000 ft<sup>2</sup> or 100% RH. (Contact your Penetron representative for MVE rates greater than 25 lb.)

Unaffected by a pH of 14. VB 225™'s low permeability of 0.05 grains/ft<sup>2</sup>/hr in Hg<sup>-1</sup> offers long-term protection under VCT, sheet-vinyl, wood, rubber, epoxy, polyurethane, and solid backed carpet.

May be used as a finished floor. Contact a Penetron representative for finished floor limitations and details.

Can be applied on concrete slabs in offices, hospitals, schools, super-markets, manufacturing facilities, airplane hangars, residential housing, and many other applications.

Low odor and fast cure allow for application in occupied buildings with minimum disruption.

### TECHNICAL DATA

**Pot life:** Approximately 40 minutes. Immediately empty container on floor after mixing.

**Cure time:** 8-12 hours (may vary depending on temperatures)

**Solid content:** 100%

**VOC, mixed:** < 10 g/l

**Flash point:** >200°F (93°C)

**Clean up:** Immediately with Xylene (or similar) after use

**Disposal:** Dispose of in accordance with current local, state and federal regulations. Collect with absorbent material.

#### ASTM E96 test results:

Water Vapor Transmission, grams h <sup>-1</sup> m <sup>2</sup>	0.021
Water Vapor Transmission, lb/1000 ft <sup>2</sup> /24 hr	0.1
Avg. Measured Permeance, grains h <sup>-1</sup> ft <sup>2</sup> in Hg <sup>-1</sup>	0.05

**Suggested coverage rates:** Spread and mil rates are approximate and may vary due to the porosity, absorption rate and surface profile (CSP) of any given concrete substrate.

#### Vapor testing per ASTM F1869 (CACL) protocol:

Up to 10 lb/1000 ft <sup>2</sup> /24 hr	150 ft <sup>2</sup> /gal; approx 10 mils
10 to 15 lb/1000 ft <sup>2</sup> /24 hr	125 ft <sup>2</sup> /gal; approx 13 mils
15 to 25 lb/1000 ft <sup>2</sup> /24 hr	100 ft <sup>2</sup> /gal; approx 16 mils

#### Relative humidity testing per ASTM F2170 or ASTM F2420:

Due to the disparity between the (slab) RH and the CA-CL moisture tests, there is no spread rate correlation between the two test protocols. Use the following table for approximate spread rate guidance when using only the RH test values. Contact Penetron Specialty Products, Inc. technical staff on any questions or concerns regarding product spread rates.

< 85% RH	150 ft <sup>2</sup> /gal (3.7 m <sup>2</sup> /l)
85-90% RH	125 ft <sup>2</sup> /gal (3.1 m <sup>2</sup> /l)
90-100% RH	100 ft <sup>2</sup> /gal (2.5 m <sup>2</sup> /l)

Product may be applied to concrete 5-7 days after placement for on-grade and below-grade applications, where concrete is placed per design, and only specified water of convenience is present. VB 225™ can be applied at the rate of 150 ft<sup>2</sup>/gal (3.7 m<sup>2</sup>/l) at 100% RH. Proper ACI guidelines must be met for good concrete placing practices and slab vapor barriers, per ASTM E1745.

### STORAGE / SHELF LIFE

12 months from the manufactured date. Always keep in cool/dry place unexposed to sunlight. VB 225™ must NOT be subject to freezing, both in shipping and storage.

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## PACKAGING

2.55-gallon (9.7-l) kit (1.6:0.95-gallon (6.1:3.6-l) proportioned part A/B packaging).

## DIRECTIONS FOR USE

### Surface preparation:

Concrete substrates to receive VB 225™ must be structurally sound, solid, absorptive and meet acceptable industry standards, as defined in ACI Committee 201 Report "Guide to Durable Concrete" and ICRI Guideline No. 310.2R-2013 "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair. Surfaces must be free of adhesives, coatings, curing compounds, concrete sealers, efflorescence, dust, grease, oils, and any other material or contaminant that may act as a bond breaker. Building envelope must be in place and environmentally stable prior to product application.

Penetron Specialty Products Inc. recommends older, existing concrete slabs be cored and analyzed for various contaminants, such as sulfurous salts, ASR (Alkali Silica Reaction), unreacted water-soluble silicates and any other deleterious compounds that may act as bond breakers (water-soluble silicates are found in some curing compounds, floor hardeners and other vapor reduction products.) Slabs that have existing flooring failures are strongly recommended to have core samples taken to identify the failure mode or identify any deleterious constituents in the concrete. It is the owner or the owner's representative's responsibility to test the slab for contaminants. Contact Penetron Specialty Products Inc. technical staff for additional details and guidelines concerning this type of testing.

All patching, leveling materials, adhesives and old coatings must be entirely removed prior to VB 225™ application. Consult with Penetron Specialty Products Inc. prior to installing any underlayments underneath VB 225™.

Shot blast or mechanically prepare the substrate to an ICRI Concrete Surface Profile (CSP) of 3-4. The concrete surface must have a minimum tensile strength of 150 psi (10.5 kg/cm<sup>2</sup>) for areas to receive normal foot traffic and 200 psi (14 kg/cm<sup>2</sup>) for areas of heavy commercial traffic, when tested in accordance with ASTM C1583.

Acid etching is not permitted. Upon completion of the blasting and grinding, the concrete slab must be vacuumed free of all dust, dirt and debris prior to VB 225™ installation. Do not use sweeping compounds that may contain oil or other type chemical that may act as a bond breaker.

The concrete surface must be at least 5°F (3°C) above the Dew Point temperature. Avoid application in a dew point atmosphere or when the ambient relative humidity is above 95% or the concrete surface is wet.

On projects that have experienced a flooring failure of any type, a minimum of an ICRI CSP-4 is recommended for surface preparation.

Testing to determine the water vapor content of the substrate, either the calcium chloride tests (ASTM F1869) or RH probe in situ tests (ASTM F2170), may be used.

### Mixing:

Open the Part A Resin (larger container) and thoroughly mix before adding the Part B Hardener (smaller container). Combine both components in total while continuously mixing; do not mix partial kits. Mix with a slow speed motor (<400 RPM) and "jiffy-type" mixing paddle, continuously for 3 minutes. Immediately after mixing, pour the fully mixed material onto the substrate. Do not scrape residual material from the pail, and do not leave pail upturned onto the substrate.

### Application instructions:

VB 225™ is applied in one coat using a squeegee and 3/8" nap epoxy rated roller cover. VB 225™ is poured from the container upon completion of mixing and spread with a squeegee to the appropriate coverage rates. VB 225™ is then back rolled at right angles (90 degrees) to the squeegee application, evenly distributing product across the area to be treated with no missed areas. As VB 225™ is absorbed and penetrates into the surface of the concrete slab, air is displaced in the concrete capillaries, resulting in "out gassing". Out gassing channels are self-healed during the curing of VB 225™ and do not affect performance or warranties. If the prepared substrate is subject to excessive out gassing or pin-holing during the application of the VB 225™, contact the Penetron Specialty Products Inc. technical staff for additional recommendations. High points created by the displacement can be scraped, lightly sanded, or skim coated if needed to produce an acceptable level, smooth surface. Concrete surface profile, absorption rate and moisture vapor rates will determine coverage requirement.

Apply VB 225™ at substrate and ambient temperatures between 50° to 90°F (10° to 32°C). Provide ventilation for VB 225™ during application and cure time. Prior to the installation of any subsequent flooring systems, adhesives or coatings, the cured VB 225™ must be clean and free of all dust, dirt and debris. Sanding is not required. If VB 225™ application is to remain uncovered for an extended period of time (longer than 5 days), contact the Penetron Specialty Products Inc. technical staff for additional guidelines. If installing MMA's or PMMA's, the maximum recoat window is 48 hours after VB 225™ has cured for 8 to 12 hours (may vary depending on environmental conditions).

### Treating cracks and expansion joints:

Prior to installing the VB 225™, cracks and voids should be completely cleaned out and repaired using SURFIX™ FEP or

# VB 225™

VB 225™ mixed with an appropriate epoxy thickening agent. Cracks on existing concrete slabs that may be contaminated should be cut out 1/4x1/4 inch (6x6 mm) to remove the contaminants from the side walls. Expansion joints must be honored using the standard backerrod method. Contact the Penetron Specialty Products Inc. technical staff for additional information.

## Underlayments/Leveling compounds:

Cementitious underlayments/leveling or skim coatings are not required over VB 225™, but are commonly used to smooth or level the VB 225™-coated surface in preparation for subsequent floor coverings and systems as required. VB 225™ is not formulated to be a floor leveling product.

All underlayments, leveling or skim coats must be applied on top of the cured VB 225™, unless otherwise specified by your Penetron representative or the Penetron Specialty Products Inc. technical staff. For proper adhesion, always use an appropriate primer for non-porous surfaces, such as PRIMER STX 100™, prior to the installation of any cementitious material. Check with your Penetron representative when using any other manufacturer's primers.

DO NOT INSTALL VB 225™ OVER ANY GYPSUM-BASED PRODUCTS.

## Adhesives/Coatings:

Most flooring systems, adhesives and coatings may be applied directly to the cured VB 225™. Adhesives and coatings must be designed and formulated for use over a non-porous substrate. There is no absorption of any fluid or solvents from the adhesive into the VB 225™-coated concrete. Apply adhesives to a test area to check for compatibility prior to overall application.

Adhesives, containing solvents (includes water) that are not allowed to flash off prior to the flooring installation, may be applied to a minimum of 1/8 inch (3 mm) of a cementitious underlayment. Check with the adhesive manufacturer's recommendation for installation over an underlayment and the required thickness for use as a "blotter."

## CLEAN UP

Clean tools and equipment immediately after use with xylene or similar solvent. Store and dispose of cleaning solvent and rags according to job-site rules and applicable regulations.

## JOB MOCKUPS

The manufacturer requires that when its Penetron Specialty Products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project specific conditions being addressed, and standardized tests performed for each proposed system or variation.

## SAFE HANDLING INFORMATION

Avoid skin and eye contact, as well as prolonged exposure to vapors. Wear personal protective equipment including chemical resistant gloves, safety eyewear, long sleeves, full length trousers, and non-absorbent footwear. Before using this product, refer to the SDS that can be found on our Penetron Specialty Products, Inc. website [penetronsp.com](http://penetronsp.com)

### First Aid:

*Eye Contact:* Flush immediately with water and consult physician.

*Skin Contact:* Wash immediately with soap and water.

**WARRANTY:** For Warranty information, please contact your Distributor or refer to: <http://penetronsp.com/warranty-request-draft>

**PENETRON SPECIALTY PRODUCTS INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY GIVEN IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.**

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of Penetron Specialty Products under normal environmental and working conditions. Because each project is different, PENETRON SPECIALTY PRODUCTS INC. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

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