



CHAPCO™

**PRODUCT
DATA**

CHAPCO'S DEFENDER™

Moisture Vapor Barrier

1. PRODUCT NAME

CHAPCO'S DEFENDER™ Moisture Vapor Barrier

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
1105 South Frontenac Street
Aurora, IL 60504-6451 U.S.A.
800-552-6225 Office
chapco-adhesive.com

3. DESCRIPTION

CHAPCO'S DEFENDER Moisture Vapor Barrier is a low viscosity, highly penetrating, two-part 100% solids epoxy. It is specially formulated to be applied to damp or new concrete, as little as 48 hours old with a Moisture Vapor Emission Rate (MVER) less than or equal to 25 lbs. per 1,000 ft² per 24 hours (0.12 kg/m² per 24 hours) or a maximum relative humidity of 100%. It is designed to reduce the MVER to less than 3 lbs. per 1,000 ft² per 24 hours (0.015 kg/m² per 24 hours).

CHAPCO'S DEFENDER Moisture Vapor Barrier is colored blue for visual assurance of coverage during the application process. Only one coat required to penetrate and fill voids and gaps to fully seal the substrate and quickly cures as soon as 4-5 hours to provide the benefit of same day installation. CHAPCO'S DEFENDER Moisture Vapor Barrier is a moisture vapor barrier for the installation of floor coverings, tile, stone and concrete toppings. Ideal for use with other CHAPCO skim coat, patch and underlayment products.

Key Benefits and Features

- Exceeds ASTM F3010 product requirements for moisture mitigation systems under resilient floor coverings
- Less than 0.10 Perm Rating (ASTM E96)
- Direct application onto green concrete up to 100% RH
- No shot blasting required for clean, sound concrete (see Section 5 for Surface Evaluation and Preparation Guidelines)
- Can be installed over burnished concrete (see Evaluation Condition 3)
- Permeates to fill voids and gaps
- Same day flooring installation – cures within 4-5 hours
- Only one coat needed
- Zero VOC contributes to LEED® project points

Packaging

Two-part system component (packaged in a carton) as follows:
Part A: 2/3 gallon (2.84 L) in a 2 gallon (7.57 L) mixing pail
Part B: 1/3 gallon (946 ml) plastic jug
Product #70-9974-1069

Recommended Substrates

- New or existing concrete with a maximum RH of 100% or MVER of 25 lbs. per 1,000 ft² per 24 hours (0.12 kg/m² per 24 hours)

Coverage

CHAPCO'S DEFENDER Moisture Vapor Barrier requires only one coat with a typical coverage rate of 150 ft² per blended gallon (3.7 m²/L). Coverage will vary depending on surface profile and porosity, ranging from 100-180 ft² per blended gallon (2.5-4.4 m²/L). The finished application must cover the substrate completely without any voids or pinholes to ensure moisture vapor suppression.

Storage/Shelf Life

Store in cool, dry location. Keep from freezing. Do not leave containers exposed to sunlight or excessive heat for long periods of time. Product must be kept at temperatures of 40°-90°F (4°-32°C).

Part A: Maximum of 1 year from date of manufacture in unopened package.

Part B: Maximum of 1 year from date of manufacture in unopened package.

Limitations

For interior use only. Do not dilute product. This is not a waterproofing or anti-fracture membrane. Do not bridge existing expansion joints. Do not use in temperatures below 50°F (10°C). Do not use where hydrostatic pressure conditions exist or where moisture vapor emissions exceed 25 lbs. per 1,000 ft² (0.12 kg/m²) per ASTM F1869 or 100% relative humidity per ASTM F2170.

Cautions

Read complete cautionary information printed on product container prior to use. For medical emergency information, call 1-888-853-1758.

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 guidelines for the proper use and application of the covered CHAPCO products under normal environmental and working conditions. Because each project is different, H.B. Fuller Construction Products Inc. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

CHAPCO'S DEFENDER Moisture Vapor Barrier	
Physical State	Part A: Liquid, Part B: Liquid
Color	Part A: Blue Part B: Light Amber Mixed: Blue
Percent Solids	100%
Permeability (ASTM E96)	Less than 0.10 perms
Effect of pH 14 solution (ASTM D1308)	No effect
Adhesion (D7234)	400-500 psi (2.76-3.45 MPa) (100% Concrete Failure)
Hardness (ASTM D2240, Shore D)	60-65
Pot Life	25 minutes
Install Floor Covering	4-5 hours*
VOC	Part A: 0 g/L, Part B: 0 g/L
Flammability	Self-extinguishing over concrete

* Floor covering installation within hours shown above is dependent on substrate conditions, porosity and temperature, as well as application method used.

5. INSTALLATION INSTRUCTIONS

Substrate Moisture Evaluation

Before applying CHAPCO'S DEFENDER Moisture Vapor Barrier, a Moisture Vapor Emission Rate (MVER), using "Anhydrous Calcium Chloride" testing per ASTM F1869, must be obtained to determine the Moisture Vapor Emission, or a relative humidity of the concrete must be obtained, using ASTM F2170.

Preparation of Surfaces

All substrates must be structurally sound and free from any contaminants that may inhibit bond, including oil, grease, dust, paint, sealers, floor finishes, curing compounds, adhesives, etc. Weak or contaminated surfaces must be mechanically removed¹.

Mechanically prepared surfaces must support a minimum adhesion strength of 150 psi (1 MPa) when tested per ASTM D7234 (tensile bond test). Substrate temperature shall be a minimum of 50°F (10°C) during application and air maintained between 50-90°F (10-32°C). Adequate ventilation should be provided.

SURFACE PREPARATION



Surface Evaluation and Preparation Guidelines

A successful application to concrete requires evaluation and preparation to address any conditions that would prevent a good bond. The following guidelines are provided to assist in this process. Additional evaluation, testing and/or preparation may be required to ensure the above Surface Preparation Requirements are met. It is necessary to evaluate all four conditions. Check for Condition 1 on the entire concrete surface. Conditions 2 through 4 should be checked for at least once per every 50 ft² (4.6 m²) on small applications (1000 ft² [93 m²] or less) and once every 100 ft² (9 m²) on large applications (greater than 1000 ft² [93 m²]). Once you have completed the preparation method, always re-check to confirm the method worked.

CONDITION 1: Surface coatings and/or contamination such as gypsum plaster, joint compound, paint and adhesive.

Evaluation: Look at the surface and note the type and location of the surface contamination.

Preparation: First scrape off any lumps and loose material. Then use an appropriate cleaning method for the type of coating or contamination.

- For gypsum plaster and joint compound — Scrub with warm water and detergent to remove any remaining material. Thoroughly rinse off any residue and allow concrete to dry prior to application of any CHAPCO® materials.
- For paint — Chemical strippers should not be used. They may leave a residue or be absorbed into the concrete and later migrate to the surface and cause a bond failure. Paint not easily scraped off should be mechanically removed¹.
- For adhesive — Scrape off all the adhesive from the surface first, then remove the layer of adhesive-contaminated concrete by mechanical means².

CONDITION 2: Weak top layer (called laitance) or damaged concrete such as spalling, scaling, delaminating or crumbling.

Evaluation: First scrape the surface with a knife blade. If this produces a fine powder, then laitance is present. Then use a hammer or other heavy object to sound out weak or hollow areas. Note the areas that are weak or damaged.

Preparation: Weak or damaged concrete must be mechanically removed¹. Do NOT acid wash or etch concrete because it is difficult to fully remove contaminants and properly neutralize. The acid can penetrate into the porous concrete and chemically undermine it, weakening the concrete. Acid washing will not remove grease or oil.

CONDITION 3: Curing Compounds/Sealers

A) Broom finish or Steel troweled finish (non-glossy)

Evaluation: Apply water droplets onto the surface. If the droplets are not absorbed within 60 seconds the surface was treated with a curing compound/sealer or is contaminated.

Preparation: The sealed or contaminated layer of concrete must be removed by mechanical means¹.

B) Burnished finish (glossy surface)

Evaluation: Frequently Defender can be installed over burnished concrete without mechanical preparation. For glossy burnished concrete surfaces, apply test areas to confirm bond strength of at least 150 psi when tested per ASTM D7234 (tensile bond test).

Preparation: Glossy burnished concrete surfaces that do not provide bond strength of at least 150 psi must be removed by mechanical means¹.

CONDITION 4: Final Surface Preparation - removal of dirt and dust.

Evaluation: Wipe the surface with a clean dark cloth. If powder is visible on the cloth the surface is not clean enough. Note the areas that were not clean enough.

Preparation: Always use a two step method to remove surface dirt and dust. First use a dry clean broom and sweep the entire surface. Do not use oil or wax based sweeping compounds. They can leave a film on the concrete surface that will prevent a proper bond. The second step should consist of one of the following:

- Vacuuming — use a heavy-duty industrial type vacuum to provide a dust-free surface. It may also be necessary to follow vacuuming with a damp sponge wipe to remove residual surface dust.
- Water cleaning — use a stream of potable water with sufficient pressure to remove dust and dirt. When necessary, also scrub with a stiff bristled brush. **Remove all wash water and allow concrete to thoroughly dry.**
- Detergent water cleaning — using a stiff bristled brush or broom, scrub the entire concrete surface with a cleaning product intended for concrete or a solution of at least 4 ounces (113 g) of trisodium phosphate per gallon (3.78 L) of warm water. Before the surface dries, thoroughly flush the concrete with clean potable water to remove all wash water and residue. **Allow concrete to thoroughly dry prior to application of CHAPCO® materials.**

Cleaning Notes

(¹) Mechanical Cleaning

There are several different methods of mechanically cleaning substrates:

- Abrasive (Sand) Blasting
- Grinding
- Sanding
- Shot Blasting

Shot blasting is one of the most effective methods of removing a wide variety of contaminants from concrete. A shot blast machine will remove sealers, coatings, curing compounds and other contaminants quickly and effectively, leaving behind a proper surface ready to receive CHAPCO'S DEFENDER. Thickness of surface removal must be deep enough to eliminate penetrated contaminants. Your choice of Mechanical Cleaning will depend upon the condition of the concrete to be sealed.

(²) Mechanical Removal of Existing Flooring Adhesives

Remove existing adhesives by shot blasting. Sanding or grinding are not suitable methods to remove adhesives that have penetrated into the concrete. Be sure to use proper safety equipment for hazardous materials as old cutback adhesive may contain asbestos. Harmful dust may result. Inhalation of asbestos dust may cause asbestosis or other serious bodily harm. Consult all applicable government agencies for rules and regulations concerning the removal of floorings and adhesives that contain asbestos.

Tools and Accessories

The following items are required for most installations. For some projects may need additional tools and accessories.

- Skin and eye protection (latex gloves and safety glasses)
- Floor cleaning and preparation equipment (shop vacuum, etc.)
- Variable speed drill and mixing paddle
- Silica sand
- Squeegee with handle or 1/16" (1.6 mm) square-notched trowel
- Paint roller and handle
- 3/16" (4.8 mm) nap lint-free foam roller sleeves
- Cleated sports shoes

Mixing Instructions

CHAPCO'S DEFENDER Moisture Vapor Barrier Part A Epoxy Resin is designed exclusively for use with CHAPCO'S DEFENDER Moisture Vapor Barrier Part B Curing Agent. Substrate and all materials must be maintained at 50°-90°F (10°-32°C) for 24 hours before, during and after installation. Pour pour entire container of CHAPCO'S DEFENDER Moisture Vapor Barrier Part B Curing Agent into the pail containing CHAPCO'S DEFENDER Moisture Vapor Barrier Part A and mix thoroughly for 3 minutes using a low speed (≤150 rpm) mixer. Do not over mix and avoid using high speed mixing to prevent entraining air.

Note: Mixing initiates an exothermic reaction. Blended material left in the mixing container will generate heat and shorten working time.

Joint/Crack Pre-Treatment

- For Static Cracks/Control Joints **less than 1mm** (with no movement): Remove any dirt, debris or existing sealant from cracks and joints. Mix CHAPCO'S DEFENDER per instructions. Treat all static joints with CHAPCO'S DEFENDER Moisture Vapor Barrier by applying material into the joint with a paintbrush to completely coat the walls of the cavity.



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- For Static Cracks/Control Joints **greater than** 1mm (with no movement): Remove any dirt, debris or existing sealant from cracks and joints. Mix CHAPCO'S DEFENDER per instructions. Blend at a 1:1 ratio with fine silica sand. Immediately pour into control joints and cracks, level with concrete surface.
- For Expansion Joints/Dynamic Cracks (with movement): Remove any dirt, debris or existing sealant from cracks and joints. Treat all dynamic joints with CHAPCO'S DEFENDER Moisture Vapor Barrier by applying a layer into the joint with a paintbrush to completely coat the walls of the cavity. Once cured, fill the joint with sand or backer rod while leaving the top of joint open for proper treatment with sealant.

Note: There is a major difference between the proper application of flooring over static vs. dynamic joints, as well as variations based upon the type of flooring being installed. Please follow appropriate industry standards, as well as flooring manufacturer's recommendation for treatment of joints.

Application Instructions

Layout the substrate area into 150 ft² (13.9 m²) "grids" for each 1 gallon (3.78 L) blended kit.

Immediately after mixing, pour the blended gallon container of CHAPCO'S DEFENDER Moisture Vapor Barrier, across the grid area while spreading with a squeegee or 1/16" (1.6 mm) square-notched trowel allowing the CHAPCO'S DEFENDER Moisture Vapor Barrier to saturate the surface. **Do not move too fast.** (Unused CHAPCO'S DEFENDER should not be left in container. Immediately pour excess material onto a disposable surface (such as cardboard) or into disposable containers, at a thickness no greater than 1/4" (6 mm). Once cured (after approximately 4 hours) the coated surfaces or containers may be disposed of in normal job site trash.)

Back roll surface with a 3/16" (4.8 mm) nap foam roller to evenly distribute the product. First saturate the roller and then work at a smooth even pace. Periodically evaluate the surface to ensure a smooth continuous film. It may be necessary to wait up to 5 minutes before back rolling to minimize surface bubbles. **Do not over-work.**

Higher temperatures will shorten the work time. Do not exceed 180 ft²/gallon (4.4 m²/L). CHAPCO'S DEFENDER Moisture Vapor Barrier performs equally well on porous or dense concrete. On porous concrete it penetrates into the surface. On dense concrete it forms a continuous, topical film. While the porosity of the substrate affects the application appearance, it does not affect the performance.

Curing and Surface Preparation

Most floor coverings and adhesives require the application of a CHAPCO cementitious underlayment over the CHAPCO'S DEFENDER.* CHAPCO'S DEFENDER Moisture Vapor Barrier cures to a tacky film with no transfer to the touch in as little as 4-5 hours. The CHAPCO'S DEFENDER surface must be primed with undiluted CHAPCO MP Multi-Purpose Primer prior to installation of cementitious underlayment. To maximize installation efficiency primer can be applied in as little as 4-5 hours after installation of CHAPCO'S DEFENDER. Allow primer to dry and apply appropriate CHAPCO cementitious underlayment at a minimum thickness of 1/8" (3 mm). For further information contact your CHAPCO representative.

* CHAPCO'S CHAMPION Urethane Wood Flooring Adhesive, Safe-Set 2 Pressure Sensitive Releasable Adhesive, Safe-Set 7 Clear Thin Spread Adhesive, Safe-Set 602 Pressure Sensitive Releasable and Safe-Set 607 Premium Spray Adhesive (VCT applications only) may be applied directly to CHAPCO'S DEFENDER Moisture Vapor Barrier if concrete surface is sufficiently smooth and level. If the substrate is not smooth and level, please treat with appropriate CHAPCO surface preparation products as noted above.

Clean-up

Immediately clean all tools and equipment with denatured alcohol, or soap and water. Once cured this material can be removed with epoxy remover or mechanically removed.

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6. AVAILABILITY AND COST

To locate a distributor in your area, please contact:

phone: 800-832-9002

website: chapco-adhesive.com

7. WARRANTY

H.B. Fuller Construction Products Inc. ("HBF-CP") offers a limited warranty on this product when installed in accordance with HBF-CP's printed specifications. Ask your sales associate or call 800-832-9002 for a copy of the limited warranty.

8. MAINTENANCE

Not applicable.

9. TECHNICAL ASSISTANCE

Information is available by calling the Technical Support Hotline:

Toll-free: 800-832-9023

Technical and Safety Literature:

To acquire technical and safety literature, please call 800-832-9023

10. FILING SYSTEM

Division 3 - Concrete
Division 9 - Finishes



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