



CHAPCO® DEFENDER EZ™

Moisture Vapor Barrier

PRODUCT DATA

SURFACE PREPARATION

1. PRODUCT NAME

CHAPCO® DEFENDER EZ™ Moisture Vapor Barrier

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
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Aurora, IL 60504-6451 U.S.A.
800-552-6225 Office
800-832-9023 Technical Support
800.952.2368 Fax
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3. DESCRIPTION

CHAPCO® DEFENDER EZ™ Moisture Vapor Barrier is a 1-part, highly-engineered, polymeric emulsion moisture mitigation formula. It is 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 also designed to reduce the MVER from 25 lbs. to 3 lbs. per 1,000 ft² per 24 hours (0.015 kg/m² per 24 hours).

CHAPCO® DEFENDER EZ™ is colored blue for visual assurance of coverage during the application process. Two coats are required to fully seal the substrate; and it quickly dries in as soon as 3-4 hours. Once dry, this product doesn't require a primer before the application of CHAPCO® surface preparation products.

CHAPCO® DEFENDER EZ™ is a moisture vapor barrier for the installation of floor coverings, tile and stone. Ideal for use with other CHAPCO® adhesives, patch, underlayment, leveler and mortar products.

Key Benefits and Features

- Direct application onto green concrete up to 100% RH
- 1-part, simply hand stir before use
- No primer required, before the application of surface preparation products
- No waste and no special handling required
- Mechanical preparation, such as shot blasting, may not be required, especially for clean, sound concrete (see Section 5 for Surface Evaluation and Preparation Guidelines)
- Can be installed over burnished concrete (see Evaluation Condition 3)
- Same day flooring installation – dries within 3-4 hours
- Less than 0.10 Perm Rating (ASTM E96)
- Low VOC. Contributes to LEED® project points

Packaging

5 U.S. gallon plastic pails (18.93 L)
Product #15035950

Coverage*

CHAPCO® DEFENDER EZ™ requires two coats, with the following application coverage rates:

- First coat applied at a rate of 150 ft²/gallon (3.68 m²/L).
- Second coat applied at a rate of 150 ft²/gallon (3.68 m²/L).

For estimating purposes, this would equate to a combined coverage of 75 ft² per U.S. gallon (1.84 m²/L). The typical combined coverage* rate is 60 to 75 ft² per U.S. gallon (1.47 to 1.84 m²/L).

The finished application must cover the substrate completely without any voids or pinholes to ensure moisture vapor suppression.

*Coverage may vary depending on surface porosity and/or texture.

Suitable 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)

Storage/Shelf Life

Store in cool, dry location. Protect 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). Maximum of 12 months from date of manufacture in unopened package. Uncontaminated, resealed partial pails of product can be stored, until depleted, for up to 6 months.

Limitations

- For interior use only.
- Do not dilute product.
- This is not a waterproofing or anti-fracture membrane.
- Do not bridge existing expansion joints.
- Use only when temperatures are 50°-90°F (10°-32°C).
- Do not use where hydrostatic pressure conditions exist.

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® DEFENDER EZ™ Moisture Vapor Barrier	
Permeability (ASTM E96)	< 0.10 [at a dry film thickness of 0.03 inches (0.76 mm)]
Adhesion (ASTM D7234)	> 200 psi (> 1.38 MPa)
Effect of pH 14 solution (ASTM D1308)	Pass
Physical State	Liquid
Color	Blue
Drying Time per Coat [at 70°F (21°C), 50% RH]	90-120 minutes
VOC	1 gram/liter
Storage	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).
Shelf Life	Maximum 12 months from date of manufacture in properly stored, unopened package. Uncontaminated, resealed partial pails of product can be stored, until depleted, for up to 6 months.

5. INSTALLATION INSTRUCTIONS

Substrate Moisture Evaluation

Before applying CHAPCO® DEFENDER EZ™, refer to the CHAPCO® Moisture Mitigation Checklist and use an approved testing method to determine the relative humidity of the concrete or Moisture Vapor Emission Rate (MVER). Approved methods include the use of ASTM F2170 to determine the relative humidity of the concrete or "Anhydrous Calcium Chloride" testing per ASTM F1869 to determine the MVER.



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 removed.¹ (See **Cleaning Notes** below)

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 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 into 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 CHAPCO® DEFENDER EZ™ 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 effectively, leaving behind a proper surface ready to receive CHAPCO® DEFENDER EZ™. Thickness of surface removal must be deep enough to eliminate penetrated contaminants. Your choice of Mechanical Cleaning will depend upon the type and depth of the contaminate to be removed from the substrate.

(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 you may need additional tools and accessories.

- Skin and eye protection (gloves and safety glasses)
- Floor cleaning and preparation equipment (shop vacuum, etc.)
- 1/16" x 1/16" x 1/16" (1.6 x 1.6 x 1.6 mm) square-notched trowel
- Paint roller and handle
- Lint-free 1/4" (6 mm) nap roller sleeve
- Cleated (hard rubber) shoes

Joint/Crack Pre-Treatment

- **For Static Cracks, Cuts or Joints less than 1 mm wide:** remove dirt, debris or existing sealant from all cracks and joints, then treat static (non-moving) joints, cuts and cracks with CHAPCO® DEFENDER EZ™ by directly applying CHAPCO® DEFENDER EZ™ into the cracks or joints with a paintbrush, to completely coat the walls of each cavity.



• **For Static Cracks / Control Joints 1 mm-3 mm wide:** remove dirt, debris or existing sealant from cracks and joints, then use a concrete crack filler, such as CHAPCO® SmoothFinish™ Skim Coat, and allow to dry 15-60 minutes.

• **For Static Cracks / Control Joints more than 3 mm wide:** remove dirt, debris or existing sealant from cracks and joints, then use a concrete crack filler, such as CHAPCO® QDP PLUS mixed with CHAPCO® ADDITIVE and allow to dry 60-90 minutes.

• **For Expansion Joints/Dynamic (moving) Cracks:** remove any dirt, debris or existing sealant from cracks and joints. Treat all dynamic (movement) joints with CHAPCO® DEFENDER EZ™ by applying a layer into the joint edges with a paintbrush to completely coat the walls of the cavity. Once dried, fill the dynamic joint with backer rod, leaving a minimum of 1/2" (12 mm) open at the top for proper treatment with a 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 recommendations for treatment of joints.

Application Instructions

Lay out the substrate area into one 150 ft² (13.94 m²) "grid" (6 ft. x 25 ft. / 1.83 m x 7.62 m) to validate the initial gallon spread rate. Depending on the porosity of the substrate, each gallon (3.78 L) will yield an average of 120-150 ft² (11.14- 13.93 m²), per coat.

After stirring (as noted above), spread one gallon of the CHAPCO® DEFENDER EZ™, across the grid area with a 1/16" x 1/16" x 1/16" (1.6 x 1.6 x 1.6 mm) square-notched trowel. NOTE: Do not exceed 150 ft² (13.94 m²) per applied gallon. **Product must be troweled as the first step and followed up in unison with the quarter inch nap roller.**

Immediately saturate the roller in the initial application of trowel applied CHAPCO® DEFENDER EZ™. Then backroll the area, to optimize disbursement of the material over the entire substrate. Periodically evaluate the surface to ensure a smooth continuous film.

Allow to dry a minimum of 90-120 minutes. As the membrane dries it will transition from light blue to dark blue in color. Once the initial coat dries (after 90-120 minutes), the final coat can be applied. Repeat the first coat application steps using the 1/16" x 1/16" x 1/16" (1.6 x 1.6 x 1.6 mm) square-notched trowel, followed up in unison with the quarter inch nap roller. The second coat must fill any remaining white pinholes from the initial coat. Care should be taken to not gouge or otherwise disturb or damage the dried membrane. Inspect the dried film to make sure there are no pin holes, voids, bubbles or breaks in the membrane. Apply additional CHAPCO® DEFENDER EZ™ to fill all voids, and allow to dry. **Do not over-work.**

The initial application of CHAPCO® DEFENDER EZ™ will require a minimum of 90-120 minutes to dry before a second coat can be applied, depending on ambient conditions. The finished application must cover the substrate completely without any voids or pinholes, to ensure moisture vapor suppression. Once dry, the second coat will appear darker than the first coat. The second coat MUST dry 90-120 minutes before moving to the next installation step.

After a job is complete, any unused, uncontaminated CHAPCO® DEFENDER EZ™ Moisture Vapor Barrier can be simply resealed securely with the container lid, and then can be used for up to 6 months (see storage guidelines).

Drying and Surface Preparation

Most impervious floor coverings require the application of a CHAPCO® cementitious underlayment over CHAPCO® DEFENDER EZ™* for the adhesives to bond properly to the floor coverings. Combined coats of CHAPCO® DEFENDER EZ™ dry in as little as 3-4 hours, depending on surface porosity and ambient humidity. Apply appropriate CHAPCO® cementitious underlayment directly to the dried DEFENDER EZ™ at a minimum thickness of 1/8" (3 mm) (no primer is required). For further information contact your CHAPCO® Sales Associate.

*CHAPCO'S CHAMPION™ 255 Urethane Wood Flooring Adhesive, CHAPCO® 791 Wood 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® DEFENDER EZ™ 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, for the proposed floor coverings, as noted above.

Clean-up

Clean tools, hands and excess material immediately (while still fresh) with soap and water. Once dry (in 60-90 minutes), this material is difficult to remove.

6. AVAILABILITY

To locate a distributor in your area, please contact:

phone: 800-832-9002

website: chapco-adhesive.com

7. LIMITED WARRANTY

The product(s) covered by this Product Data Sheet are sold subject to a Limited Warranty and related terms. **H.B. Fuller Construction Products disclaims the implied warranties of merchantability and fitness for a particular purpose and all incidental and consequential damages arising out of the sale, purchase or use of this product.** For Limited Warranty details visit chapco-adhesive.com. To obtain a hard copy of the Limited Warranty call H.B. Fuller Construction Products at 800-832-9023 or mail a written request to the address in Section 2 of this Product Data Sheet.

8. MAINTENANCE

Not applicable.

9. TECHNICAL SERVICES

Technical and Safety Literature:

To acquire technical and safety literature, please visit our website at chapco-adhesive.com.

10. FILING SYSTEM

Division 3 - Concrete

Division 9 - Finishes