

Description

MoistureShield™ - with InnerCrete™ Moisture Membrane Technology, is a spray applied moisture barrier for concrete, used to create a permanent, and non-film forming membrane 2mm to 4mm below the surface, retaining the original concrete surface profile. The permanent membrane not only protects the slab from external water attack (waterproofing) but also cures and seals, it provides a lifetime moisture barrier and pH mitigation system that will protect slab toppings, coatings, and finished floor surfaces. Cementitious surfaces can be applied after visibly dry, coatings and flooring can be applied 12 hours after visibly dry.

MoistureShield™ provides complete versatility, with ease of installation. The concrete mass remains permanently protected by the internal InnerCrete™ Membrane, and the surface retains its profile for direct installation of coatings, adhesives, cementitious toppings, epoxies and paints. There is no visible change to the appearance of the concrete after being treated with MoistureShield™.

InnerCrete™ Membrane Technology is **NOT** densification by crystallization, so it DOES NOT work the same as other silicate-based products. Competing silica-based products build crystalline structures inside the concrete and can compete for hydration water during the curing process, and lead to micro-fractures in the slab. MoistureShield™- with InnerCrete™ Membrane Technology is a unique and patented technology that is native to concrete and functions in new or old concrete.

MoistureShield™ - Time of Pour: In a freshly poured slab, MoistureShield™ acts to promote hydration of unreacted Portland cement in the slab in a conversion process to form a protective barrier and increased durability of the concrete. Note: Coverage Rate difference with other applications.

MoistureShield™ - Sweating Slab: Occurs when a slab experiences sweating on older, cured concrete. MoistureShield™ targets the unreacted materials in the slab to form an internal protective barrier, significantly reducing moisture from below the slab. This moisture barrier combined with the new Surface Prep EXT™ prepared surface, will break up surface tension of condensation caused by humid hot air. Best when combined with air movement to assist the Surface Prep™ and MoistureShield™ system.

MoistureShield™ - General Moisture Mitigation: MoistureShield™ targets the unreacted materials in the slab to form an internal protective barrier. This significantly reduces movement of water and moisture vapor from above and below the slab, while permanently controlling pH of the surface to mitigate any reaction with floor coverings or adhesives.

In all scenarios, the newly formed barrier permanently protects concrete, maintains a healthy pH and provides a long-term solution for other cement-based materials from coating de-lamination from MVER, water penetration, hairline cracking, surface abrasion and erosion, stains and odors, micro-organism growth, efflorescence, dusting, and other destructive environmental elements.

MoistureShield™™ Features & Benefits

- No VOCs or No HAPs or TAPs
- Can be used as a curing compound for new concrete, complies ASTM C1315
- Fully biodegradable and eco-friendly
- Inhibits ASR & NASR
- Maintains healthy pH at the surface, Inhibits formation of efflorescence
- Inhibits osmotic pressure and MVER
- Permanent internal conversion of the slab top 2-4mm layer
- Maintains some concrete breath-ability
- Ready to use single component and easy hand spray application
- Original appearance of the concrete is maintained
- Versatile - surface profile is maintained, non-film forming
- Improved concrete durability and longevity, system continues to improve over time
- Reduces long-term maintenance and future flooring installation costs
- Allows direct placement of other coatings, adhesives, and finished floor systems
- Cost effective - Easy installation, no special equipment, minimal labor

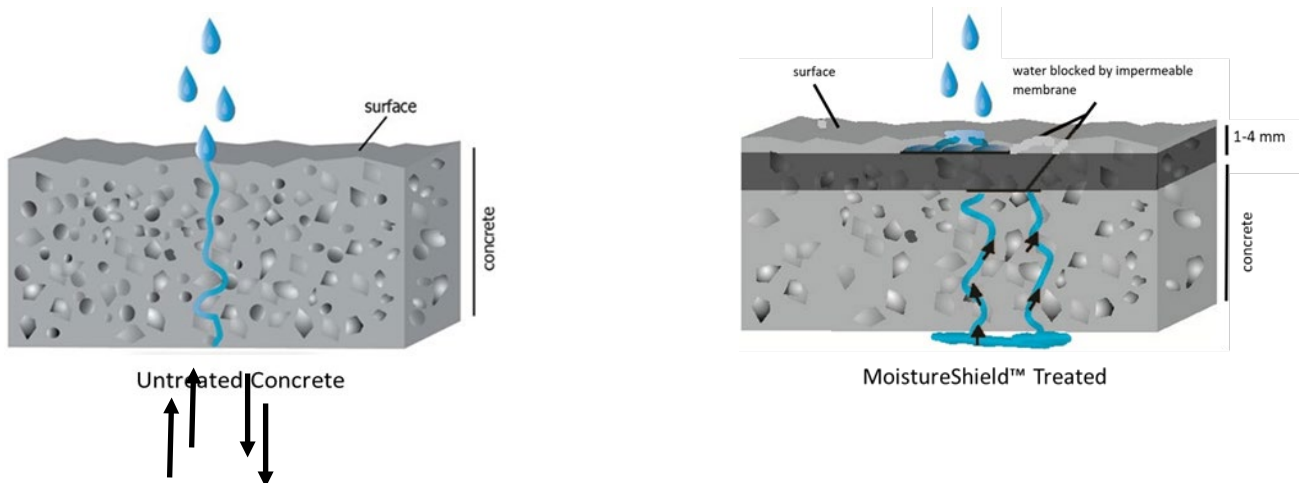
Applications as a Barrier Primer/Sealer

- New and existing concrete and cement-based materials with a bare untreated surface
- For indoor and outdoor concrete applications
- Above and below-grade, including underground
- As a curing compound, performance complies with ASTM C1315

Product Details

Packaging	US 4-gallon pail (15.14L)
Color	White Liquid (clears out as it absorbs into slab)
Shelf Life	24 months in unopened containers; Do Not Allow Material to Freeze
Dry Time Guidelines	30 min to 2 hours – depending on humidity and air flow
Theoretical Coverage	150-175 SF New Concrete after pour, 225 SF per gallon existing porous concrete
Application Temperature	Should be applied between 38°F (rising) and 90°F
ASTM F710	pH can be as high as 14
ASTM F2170-11	Relative Humidity of slab can be 99% to HI RH
ASTM F1869-11	Lowers MVER over time curve depending on concrete age and chemistry

Example



Concrete Preparation

Note, that in general, ALL substrates must be clean, sound, and have minimum 250 psi tensile bond strength when tested per ASTM D4541. Be sure concrete is free from oil, grease, paint, any contaminants that would act to prohibit penetration. S3 recommends **Surface Prep EXT™** for concrete preparation. Do not apply to concrete that has hardeners or densifiers. (Surface Prep EXT™ will remove these applications as well open concrete and profile for proper absorption.) Concrete must be porous, according to ASTM E 331 Water Droplet Test and free of visible standing water.

Concrete surfaces can be damp or dry. MoistureShield™ product should never be pooled on the surface. MoistureShield™ should be applied in temperatures above 38°F and rising.

NEW CONCRETE SYSTEM SOLUTION: S3 MoistureShield™™ is designed to go direct to GREEN concrete, applied in approximately 12 hours from fresh pour, or when a person can walk on the concrete surface without marring it, on broom or wood float porous finish. VERY IMPORTANT – no standing water.

Application

Recommended Equipment for Applications Important:

Depending on the size of the project and age of the concrete, you have options for installation, small areas can utilize a pump sprayer with a cone tip. **WARNING!** Do not pump to high pressure and aerosol the product, spray with low pressure, large areas new or existing concrete using an airless sprayer (see recommended tip size). Using an airless sprayer on newly placed concrete, be sure to adjust pressure settings so that no surface etching or damage occurs. The use of centrifugal pumps is not recommended. Use a low to medium pressure sprayer complete with an extension wand and fan tip spray size of 0.024-0.031 inches (0.61-0.79 mm) for flatwork applications. Vertical applications can use either installation methods.

Alternate spray system: Use an agricultural sprayer using an approximate 5 gallons per minute (18.93 liters per minute) diaphragm pump and fan tip spray size of 0.50-1.0 gallons per minute (1.89-3.79 liters per minute).

Recommended Application Method Important: Spray in a 50% overlapping pattern. For slab installations, hold wand perpendicular to the surface and spray 8 inches to 12 inches (15 -30 cm) from the surface. Important tip can be a fan or cone for complete coverage. Apply product using the prescribed application rate for the area. If pooling or dry areas are observed while applying, use a fine bristle broom (Dust Push Broom) to distribute material so that the product remains uniform throughout the application area. Do not allow excess material to dry on the slab. Remove or continue to work in excess MoistureShield™ with stiff bristle broom or remove with a squeegee, wet-vac, or mop.

Note: AT TIME OF POUR - Product not removed from the slab will require sanding to remove “glaze” look and may become slippery in a wet condition. S3 recommends full-slab treatments but can be applied in sections with concern. If full-slab treatments cannot be performed, then treatments should extend beyond the proposed treatment area to the nearest control or construction joint. S3 MoistureShield™ is a penetrating concrete treatment that is spray-applied once bleed water is not present, and it will bare weight of installers without leaving footprints. If concrete control joints are cut after application, reapply MoistureShield™ to the joints or fill with urethane crack fill. It is recommended but all control joints be filled regardless of when they are added.

Note: SWEATING SLAB – Surface Prep EXT™ must be used first to open the concrete and create a porous surface for absorption of MoistureShield™. The Surface Prep EXT™ should be fully removed and a damp (no standing water) floor or dry to receive MoistureShield™ as the final application (see method and application rate) If control joints, expansion joints or existing holes from old bolts are present fill with a urethane crack fill before application of Surface Prep EXT™.

MOISTURESHIELD™ APPLICATION RATE

Existing Concrete - 225 sq. ft. per 1 gallon (4.9 m2 per 1 liter) Page 2-4 – **(Existing Moisture Mitigation or Sweating Slab)**

Time of Placement – 150-200 sq. ft. should be used at the time of placement. This is defined as applying product within 24 hours of final finish on horizontal surfaces. Apply MoistureShield™ after final troweling has been completed and concrete can take foot traffic without damage without any standing water.

Note: Concrete Finish - The concrete surface finish is a key part of the MoistureShield™ product application process. The surface finish should be discussed with the concrete foreman and the superintendent prior to concrete placement. The surface, if hard troweled, should be finished in an open fashion (unburnished, porous), avoiding a burnished or black surface finish. MoistureShield™ requires a porous (open matte) use ASTM 3191 -16 to determine if finish is porous, allowing MoistureShield™ to penetrate the concrete and perform as intended. S3 suggests meeting with GC and concrete finishing crew and request a wood trowel/float finish for maximum porosity. Burnished or Black finishes will require a initial prep step with S3 Surface Prep Ext™ to open the surface and porosity for acceptance of S3 MoistureShield™

Admixtures

The use of moisture vapor reducing admixtures (MVRA), integral waterproofing admixtures, or latex admixtures should not be used when utilizing MoistureShield™.

Accelerators

Accelerators are often used during colder months to accelerate the setting of the concrete. These admixtures will also accelerate the action of MoistureShield™. Always check batch tickets and document, Installers must test a small area prior to a full application.

Accelerators can be inconsistent batch to batch, continue test areas throughout the project. The test areas can vary in dimensions but equate to 9-10 sq ft. Apply MoistureShield™ to the test area broom in as directed and wait 30-45 minutes. If MoistureShield™ does not absorb after brooming and stays milky, then the accelerator is still active. Continue to test until the MoistureShield™ remains unchanged from its normal process and consistency. Once MoistureShield™ shows signs of penetrating after one soft brooming in both directions on a test area for a minimum of 30-45 minutes, full application can begin.

Typically Applied Concrete Products

There are many products on the market, we don't recommend them with the application of MoistureShield™. The variance of these products could work but most will not. If a curing compound is used prior to the MoistureShield™ application, do not treat the concrete with MoistureShield™.

Environmental Concerns and Approved Process

Hot Weather creates a scenario of rapid evaporation, gelling and potential lack of consistency of installation. S3 recommends pre-wetting concrete when surface temperature is above 90°F (32.2°C) or below 30% relative humidity. Utilize same spray but in a mist versus a full spray directly in front of MoistureShield™ application. This process helps prevent rapid evaporation of MoistureShield™ and increases the penetration. To ensure penetration, continuously broom in product until no visible product on the surface. MoistureShield™ should be removed or worked in before allowing too dry on top of slab as a coating. If this occurs, allow to fully dry and remove with a 60-grit sandpaper on a floor rotary buffer.

Windy Conditions creates a scenario where product may not fully reach the surface. In the event wind speed exceeds 10 MPH, you will need to shroud the spray tip and keep consistently 8-10 inches from surface.

Cold Weather include low temperature application and potential accelerator addition to the concrete. The minimum air and concrete temperature at which MoistureShield™ can be applied is 35°F and rising (1.7°C). It is preferable to begin at 41°F. If an accelerator has been mixed in the concrete, always test a small area as described in the Accelerators section of this document. Dry times can be longer with the low temps but high humidity, MoistureShield™ application must be installed early in the day based on shorter days. Avoid installing when you have a decreasing temperature and if the concrete company may need to protect the concrete with blankets or other means.

Moisture Occurrence

A rain event examples, heavy dew or mild rain that is sufficient to cause standing water on the concrete structure. If a light mist is observed that causes no standing water, this is not considered an issue and application does not require further attention. In the event moisture creates standing water during an application, the application completed of the slab that has been treated and visibly dried is considered installed. If a portion of the slab is being treated and not visibly dry when standing water accumulates, MoistureShield™ products will need to be reapplied after the added water has dried. **IMPORTANT:** Ensure area which was properly treated has been notated (tape or chalk line) to ensure proper placing for resuming application. After added moisture has dried or at a minimum is not pooling, example would be damp or slightly darker surface color. Installation can proceed as noted in Installation process. **IMPORTANT:** start from point of last point of success. Post-Installation walk on traffic is allowed when product is visibly dry after application. Heavy load traffic can be allowed after 4 hours. Control Joints MoistureShield™ requests that control joints are cut after MoistureShield™ have been applied. If the control joints are cut prior to the placement of MoistureShield™, the area will need to be cleaned to remove the residual dust then apply S3 Quikfill urethane. MoistureShield™ should be installed with a low-pressure sprayer, working from side to side to ensure complete surface coverage overlapping 50% has with most spray applied densifiers and cure and seal applications. Surfaces should be well saturated, in accordance with the specified application rate of 150-175 sq.ft. /gallon (New), 225 sq.ft. / gallon (Old). If treating a vertical surface, start at the bottom, spraying horizontally back and forth working up the wall. Surfaces with low absorption rate may require agitation (scrubbing) to assist in product penetration. Do not dilute the product.

ACTIVATION PERIOD / DWELL TIME

Product begins activation immediately and will continue to react in the presence of water. Results will be noticeable within 24 hours.

MAINTENANCE:

No special maintenance required. Clean surfaces as needed.

STORAGE & HANDLING:

MoistureShield™ Protect from freezing. All containers must be sealed properly when stored. All containers must be secured during transport to prevent damage. Lids, caps and closures must be tightened during transport and storage to avoid spillage.

DISPOSAL:

MoistureShield™ is fully biodegradable. Neutralizing and dilution with water will be required to meet local waste or sewage disposal requirements. Seek advice on local authority requirements before disposal. Spills should be contained and disposed of under the same requirements. Do not mix with other materials.

Technical Assistance

If you have any questions regarding this product, please call 800-933-7520 for further information.

SAFETY PRECAUTIONS

HEALTH CONSIDERATIONS

As with all epoxies, good hygienic habits must be observed, and the wearing of protective clothing and gloves is advised. Before using any S3 Surface Solutions, LLC. product, please read and follow the product Safety Data Sheet (SDS). Use this product only as directed. Keep out of the reach of Children.

FOR YOUR PROTECTION

The data, statements and recommendations set forth in this product information sheet are based on research and development work which has been carefully conducted by S3 Surface Solutions, LLC. and we believe such data, statements and recommendations will serve as reliable guidelines. This product is subject to numerable uses under varying conditions over which we have no control, and accordingly, we do NOT warrant that this product is suitable for any use. Users are advised to test the product in advance to make certain it is suitable for their installation conditions and uses.

DISCLAIMER

The information contained in this Technical Data Sheet (TDS) is correct as of the day issued. S3 Surface Solutions (S3) makes no other representation, warranty or guarantee of any kind, expressed or implied, statutory or otherwise, including without limitation in respect of merchantability, merchantable quality, durability, fitness for a particular purpose, course of performance or usage of trade, howsoever arising. The user is responsible for determining whether the S3's product is durable, fit for a particular purpose or suitable for the user's method of use or application. Given the variety of factors that can affect the use and application of a S3 product, some of which are uniquely within the user's knowledge and control, it is essential that the user firstly evaluate the S3 product to determine whether it is fit for a particular purpose and suitable for the method of use or application.

WARRANTY

The data, statements and recommendations set forth in this product information sheet are based on testing, research and other development work which has been carefully conducted by us, and we believe such data, statements and recommendations will serve as reliable guidelines. However, this product is subject to numerable uses under varying conditions over which we have no control, and accordingly, we do NOT warrant that this product is suitable for any particular use. Users are advised to test the product in advance to make certain it is suitable for their particular production conditions and particular use or uses.

WARRANTY - All products manufactured by us are warranted to be first class material and free from defects in material and workmanship. Liability under this warranty is limited to the net purchase price of any such products proven defective, or, at our option, to the repair or replacement of said products upon their return to us transportation prepaid. All claims hereunder on defective products must be made in writing within 30 days after the receipt of such products in your plant and prior to further processing or combining with other materials and products. WE MAKE NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE SUITABILITY OF ANY OF OUR PRODUCTS FOR ANY PARTICULAR USE, AND WE SHALL NOT BE SUBJECT TO LIABILITY FROM ANY DAMAGES RESULTING FROM THEIR USE IN OPERATIONS NOT UNDER OUR DIRECT CONTROL. THIS WARRANTY IS EXCLUSIVE OF ALL OTHER WARRANTIES.