

S3 – Barrier SL

Self-Leveling Cementitious Moisture Mitigation System

TDS AND APPLICATION

DESCRIPTION:

Barrier-SL is a specially formulated and versatile self-leveling cement and moisture vapor barrier-in-one, suitable for both indoor and outdoor applications, which exhibits low permeability and excellent bonding performance to existing concrete and asphalt substrates. Barrier-SL bonds to itself for higher lifts without creating cold joints and can be applied at thicknesses ranging from 1/8" to 1.5" in a single lift. The product sets to a walkable surface in 4 hours and allows for finished floor installation within 8 hours.

FEATURES & BENEFITS:

- Green technology, ZERO VOC with high recycled material content
- Eliminates need for moisture remediation coatings prior to installation
- Provides a capillary free protective layer, not allowing moisture or liquids to penetrate through it.
- Single pour allows application thickness from 1/8" up to 1.5" (thin to feather edge)
- No primers required between lifts, Barrier SL bonds to itself.
- Self-Leveling surface will be smooth, level, and without cracks.
- Compressive strengths: 3000 psi within 24 hours; 4000 psi after 3 days; >6500 at 28 days
- Allows adhesives to adhere directly; refer to S3 #4151 or #2075 all-in-one floor adhesive.
- Provides moisture vapor (MVER) protection when used at 3/16" thick and greater.

Applications

- Self-Leveling/moisture vapor barrier cement over properly prepared concrete
- Excellent bonding and moisture tolerant for both indoor and outdoor applications
- Integrate with aggregates to fill trenches and deep holes in both cement and asphalt substrates.
- Skim coat and fill bug holes in vertical cement block and poured concrete walls (with field additive)

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PRODUCT DETAILS:

Packaging	50 lb. protective bags (40 per pallet)			
Color	Gray: but can be field tinted for some colors			
Shelf Life	12 months in unopened containers and humidity-controlled storage			
Set Time Guidelines		40°F	70°F	90 °F
	Healing Time	30 minutes	30 minutes	20 minutes
	Foot Traffic	>4 hours	4 hours	>3 hours
	Finished Floor Install	>8 hours	8 hours	8 hours
Coverage	21 SF per bag at ¼" thick			
Mix Ratio by Volume	1-gallon potable water per 50# bag			
Cure Time	Walkable 4 hours, Install flooring 8 hours at 70°F, full cure 28 days			
Bulk Wet Density	130 lbs./cu ft.			
Application Temperature	Should be applied between 40°F and 90°F			
ASTM 2170-11	Relative Humidity of slab can be up to 99%			
Surface Alkalinity	~ 9 pH (does not change with variation in sub-slab moisture)			
ASTM C579	Compressive Strength: 1800 (4 hours); 3000psi (24 hours); >6500 psi (ultimate)			
ASTM C321	Bond Strength to concrete >350 psi (failure in substrate)			
ASTM C413	Water Absorption <0.3%			

CONCRETE SUBSTRATE PREPARATION

Note that ALL substrates must be clean, sound, and have a minimum of 250 psi tensile bond strength when tested per ASTM D4541. Be sure concrete is free from oil, grease, paint, or any contaminants that would prohibit adhesion. Do not apply to concrete that has hardeners, curing agents, or densifiers without first checking compatibility and adhesion. Barrier SL should not be applied over slabs subject to hydrostatic pressure.

CONCRETE FINISH

S3 Barrier SL is designed to go over profiled concrete, with a CSP 2-3. For fast and easy concrete cleaning and etching, use S3 SurfacePrep EXT, a biodegradable, water based product that will achieve a cleaned and etched surface in less than 2 hours. Do not apply over concrete previously treated with S3 MoistureShield, as this can inhibit bonding.

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MIXING & APPLICATION

To prevent inconsistencies in the final mix and ensure product performance, do not divide pre-measured bags into smaller portions. Requires an accurate water-to-cement ratio of 1-gallon potable water to 50# cement. Do not mix more material than can be placed on the floor in a 20-minute period, noting that Barrier SL does have up to 40-minute healing time at 70°F.

BUCKET MIXING:

For small areas or repairs requiring only 1-3 bag mix, the product can be mixed in a 5-gallon pail or larger cement mixing container. Be sure to use a sufficiently sized hand drill (10 amp or larger) with a mixing blade that can mix to a minimum range of 500 to 800 rpm. The mixing blade should be a grout mixing blade type to provide the required shear strength (see figure 1). Pour all mix water into the container and slowly meter half the Barrier SL cement into the water. Mix this slurry fully for 30 seconds to 1 minute, making sure all dry material is wet out. Next, while continuing to spin the drill blade, slowly meter in the remaining Barrier SL. Mix aggressively for 2-3 minutes, ensuring all dry material and clumps are completely dissolved. Move mixing blade up/down and side/side during this entire process.

Figure 1



HIPPO MIXING:

For larger areas, and for mixing up to 5 bags at a time, a Hippo mixer or multiple Hippo mixers can be used to install Barrier SL. Pour all mix water into the container, and slowly meter half the Barrier SL cement into the water. Mix this slurry fully for 30 seconds to 1 minute, making sure all dry material is wet out. Next, while continuing to spin the drill blade, slowly meter in the remaining Barrier SL. Mix aggressively for 2-3 minutes, ensuring all dry material and clumps are completely dissolved.

COLLOMIXERS:

If mixed in a Collomixer, multiple bags can be mixed simultaneously. Pour all mix water into the container, and slowly meter half the Barrier SL cement into the water. Mix this slurry fully for 30 seconds to 1 minute, making sure all dry material is wet out. Next, while continuing to spin the drill blade, slowly meter in the remaining Barrier SL. Mix aggressively for 2-3 minutes, ensuring all dry material and clumps are completely dissolved. From there, it can be moved as needed using a gauge rake, straightedge, squeegee, or trowel.

STRONG MIXERS & PUMPS:

For larger areas requiring continuous mixing and pumping placement, a Strong Mixer can be used to install Barrier SL. **Please consult the S3 Barrier Solutions technical team for more detailed information on this type of installation.**

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PLACEMENT:

Keep mixing containers/equipment clean between batches to help avoid set up material from contaminating subsequent placements. As soon as this mixing process is complete, empty the contents onto the application area and distribute to desired self-leveling thickness using a gauge rake, straightedge, squeegee, or trowel. Make sure all sub-floor voids and edges are carefully covered with material. To assist with void filling and help remove entrained air from mixing process, roll immediately after leveled placement with spiked roller. Pin holes should close immediately if rolled within the initial set time. The initial set time of the material occurs within 40 minutes, so work quickly and with a wet edge when pouring additional pails of material. Healing of material can occur up to 40 minutes at 70°F.

When installing with high-capacity mix/pump systems, follow all instructions per the mixer/pump manufacturer. Barrier SL can be used in a continuous mixing application with the properly rated equipment and a good understanding of continuous mixing applications. **Please consult the S3 Barrier Solutions technical team for more detailed information on this installation type.**

POLISHED FLOOR SYSTEMS:

When using Barrier SL in a polished concrete application, any added aggregates must be sized properly as related to the thickness of the product. S3 recommends WET polishing method for grinding procedures, while buffing procedures can be done WET or DRY. Barrier SL can be applied as a neat, salt & pepper, or cement terrazzo system for polishing. This material allows for fast return to service, as typical polishing and grinding can start within 12 hours of placement. **Please consult the S3 Barrier Solutions technical team for more detailed information on this installation type.**

TRENCH & DEEP HOLE REPAIRS:

Barrier SL can be poured over stone filled trenches/holes or mixed with aggregates and placed into trenches/ holes. When trenches are first filled with stone, leave approximately 1" clear from stone to top of slab. Pour properly mixed Barrier SL into the trench and use a spade or bar to disturb the stone, allowing the SL to flow down into the bed. Pour additional SL into the trench to compensate for material that penetrated the stone.

Finished floors and coatings can typically be installed over this trench the next day.

Another method for filling trenches and holes is to pre-mix the aggregates into the Barrier SL and then place into the target area with a trowel. When using this method, first pre-mix the Barrier SL per the mixing instructions in this TDS. After mixing, place it into a portable cement mixer with the aggregates and wet out the stone for approximately 1 minute. After the mixing is complete, place the material immediately into the target area and use a trowel or spade to consolidate evenly.

Trowel the surface to sink the stone aggregates and bring the cream to the top for a smooth surface.

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Collect all solid waste (both wet and dry) and dispose of according to local waste regulations. When removing asbestos-containing materials, always comply with local regulations and use extra caution in removal and disposal. UnGlu'd is non-toxic and fully biodegradable but always use standard chemical handling safety and precautions.

FLOOR PATCHING:

Barrier SL can be used as a floor-patching system, allowing trowel thicknesses from feather edge to 1/2" for ramping. This material is impervious to water when cured, so it is suitable for indoor and outdoor applications. Provides excellent chemical bonding to properly prepared concrete substrates. Surface of placed materials can be lightly scraped with trowel after 1 hour to remove ridges or imperfections. Will be walkable in approximately 2-3 hours, and floors can be placed within 6 hours. Any placement over epoxy, wood, or other substrates must first be checked for bond strength and may require a primer.

VERTICAL PLACEMENT:

Barrier SL can be used to skim coat and parge poured concrete and block walls when used with a minor dry powder additive from S3 Barrier Solutions. Material is easily modified and mixed in the field by following the same mixing instructions in this TDS. The additive allows SL material to hang vertically on a wall up to 1" thick, and troweled smooth down to a feather edge. **Please consult the S3 Barrier Solutions technical team for more detailed information on this installation type.**

SET TIMES:

General walkable loading will be allowed after approximately 3 hours from installation, and finished flooring can typically be placed after 8 hours, calculated at 70°F. The 24-hour compressive strength will reach approximately 2600 psi, with full cure compressive strength over 7000 psi in 28 days.

CAUTIONS/LIMITATIONS

The application surface must be free of dust and dirt, drywall mud/debris, oils, greases, or any other contaminant that might affect bonding. Do not use in areas subject to hydrostatic pressure. Please see warranty documents that detail installation and product warranties related to S3 Barrier SL.

CLEAN UP

Tools and surfaces can be cleaned with water. Dispose of excess material in accordance with local, state, and federal regulations.

STORAGE

UnGlu'd must be stored in tightly sealed containers, between temperatures 50-80°F. Do not allow to freeze.

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SAFETY PRECAUTIONS

HEALTH CONSIDERATIONS

As with all building materials, 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 shared in this product information sheet are based on research and development work carefully conducted by S3 Surface Solutions. 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 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 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 an S3 product, some of which are uniquely within the user's knowledge and control, it is essential that the user first evaluates 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 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 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.

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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.