FLOOR HARDENER, DUSTPROOFER AND CURING AID

DESCRIPTION

PENESEAL™ FH-PS is a clear, reactive penetrating sealer for concrete and masonry building materials designed to permanently protect, preserve and strengthen them. PENESEAL™ FH-PS penetrates deep into concrete and reacts with the elemental concrete ingredients to solidify them into a harder, denser, stronger concrete mass. Alkali salts and minerals are flushed out in the process, eliminating efflorescence and leaching and increasing bonding of surface coatings. PENESEAL™ FH-PS is formulated from nano-sized ingredients that are capable of filtering through and penetrating deep into concrete pores. It's electrical charge allows it to react with the free lime to form a stable and insoluble gel, which makes the concrete more resistant to water. The nano-sized particles are also more effective at filling in uneven surface profiles making the concrete more resistant to abrasion, chemical attack, dusting, bacterial growth and imparts a highly reflective concrete surface when polished.

RECOMMENDED FOR

- Exterior & interior slabs
- New & old concrete
- Food & drug processing plants
- Warehouses
- Manufacturing facilities

ADVANTAGES

- Fast drying – ready for polishing in 1-2 hours
- Nano-technology ensures deep penetration, which reduces maintenance costs
- Provides high sheen that improves over time to glossy with proper maintenance
- Low VOC and odorless
- Prevents efflorescence caused by ASR
- Non-Toxic

TECHNICAL DATA

Characteristic	Test Result	Test Method
Flash point	Does not flash	
Drying time	1-2 hours	
Curing	>50% moisture retention during initial 24 hours	
Permeability	>50% reduction in permeability	
Weathering	No adverse effect on exposure to UV light	ASTM G 2381

Mechanical properties after 7 days of full cure:
Results may vary depending upon concrete mic design and concrete porosity

Characteristic	Test Result	Test Method
Abrasion	Up to 80% increase in abrasion resistance	ASTM C 779
Bonding	Up to 60% increase in epoxy and polyurethane adhesion	ASTM D 3359
Hardening	Up to 40% increase in compressive strength	ASTM C 39
Schmidt Hammer	Up to 16% increase in impact resistance	ASTM C 805

Cooler temperatures, inadequate ventilation and higher humidity can extend drying times. All data are average values obtained under laboratory conditions. Impractical use, temperature, humidity and absorption of the substrate may influence the above given values.

DIRECTIONS FOR USE

Surface Preparation: Surfaces to be treated should have an open pored surface so that PENESEAL™ FH-PS can be absorbed. Remove all coatings, form oils, curing or sealing agents through chemical or mechanical means. Remove dust, dirt, laitance or any other contaminates by sweeping all areas to be treated with a fine bristle broom or scrub brush. Hose off with water and let dry. Remove any standing or puddled water to avoid dilution of PENESEAL™ FH-PS, before it is able to penetrate the surface.

Mixing: PRIOR TO USE, agitate bucket or drum.

Application: Application methods involve spray or pour followed by brooming or squeegeeing to saturate the surface.

Tools: Low-pressure sprayer, soft-bristle broom, squeegee, and water hose.

For New Concrete:
Step 1: Apply PENESEAL™ FH-PS immediately, following the concrete finishing and as soon as the concrete surface is firm enough to walk on and before hairline or temperature cracking begins. Keep the entire surface wet with PENESEAL™ FH-PS for 30 minutes, working it into the surface with a soft-bristled broom.

Step 2: As PENESEAL™ FH-PS becomes slippery underfoot, lightly mist the surface with water. This will keep the material in solution, providing maximum penetration. Do not allow PENESEAL™ FH-PS to dry on the surface.

For Old Concrete (All Cured Surfaces):
Step 1: Saturate the surface with PENESEAL™ FH-PS, so that the entire surface is wet for 30 minutes. Mist with water, if necessary, to keep from drying on the surface.

Step 2 (Option 1): If, after 30-40 minutes, the majority of PENESEAL™ FH-PS has been absorbed into the surface, broom or squeegee any excess material from all low spots and puddles, so that all remaining PENESEAL™ FH-PS is totally removed from the surface. Porous surfaces may require an additional application of PENESEAL™ FH-PS to achieve maximum protection.

Step 2 (Option 2): On the other hand, if, after 30-40 minutes, the majority of PENESEAL™ FH-PS is still on the surface, wait until it becomes slippery underfoot, then thoroughly flush the entire surface with clean water and squeegee completely dry to remove all PENESEAL™ FH-PS residue, if present.

Application Notes:

Application temperature limits are 40 ºF to 100 ºF (4 ºC to 38 ºC). The reaction of PENESEAL™ FH-PS will be slowed at low temperatures. In these cases, the concrete should be protected from freezing for six days.

Drying time is 1-3 hours. The surface can be used as soon as the application is complete and the surface is dry to the touch.

Typically only one application is required. An additional application may be required on porous substrates to achieve maximum performance.

The time requirement for curing, sealing and hardening is approx. 14-90 days. PENESEAL™ FH-PS seals concrete from within by permanently locking the pores, thus making the concrete itself the penetration barrier. This process is essentially complete within 90 days, but may continue at a much slower rate up to one year.

The color of the product is clear. PENESEAL™ FH-PS will not change the natural appearance of the masonry or concrete. During application, all treated surfaces must be flushed clean with clean water to prevent impurities from drying on the surface.

On smooth steel-troweled concrete surfaces a natural wax-like sheen will appear between 6 and 12 months after treatment. This sheen is caused by the hardening and sealing

effects of the PENESEAL™ FH-PS, as well as the natural "buffing" action of foot traffic, cleaning and everyday use of the floor. The sheen is a permanent part of the concrete surface and will last the lifetime of the surface with proper maintenance.

On old concrete – allow 3-7 days before applying paint or coverings to PENESEAL™ FH-PS treated surfaces. On new concrete – allow 30 days for proper curing of the concrete.

PENESEAL™ FH-PS is permanent. The concrete durability and appearance improves with age.

Clean all equipment with water only. Do not use thinners.

Application tools required are low-pressure sprayer, soft bristle broom, squeegee, and water hose.

MAINTENANCE

Floors: Wash or wet mop with neutral or high pH detergent. Detergents must not contain caustic soda, sulfates or hydroxides. Acids and acidic cleaners will dull the surface sheen and/or etch the surface.

Walls: Flush with clean water.

COVERAGE

Approximately 400 ft^2/gal (10-12 m^2/Lt). Coverage can vary, depending on the temperature and porosity of the concrete.

SPECIAL CONSIDERATIONS

DO NOT use PENESEAL™ FH-PS on extremely porous masonry, such as lightweight block.

DO NOT apply PENESEAL™ FH-PS to frozen or freezing surfaces or when temperature falls below 40 ^oF (4 ^oC) or if temperatures will drop below freezing during the curing period (approximately 24 hours).

Prevent PENESEAL™ FH-PS from getting on glazed and finished surfaces such as glass, aluminum, etc. In case of contact, flush immediately with water.

Protect surfaces from equipment leaks or other leaks, such as oil, hydraulic fluid, etc.

PENESEAL™ FH-PS treated surfaces can become slippery during application. Exercise caution and wear appropriate footwear and protective clothing.

PACKAGING

1-gallon (3.8-l) jugs and 5-gallon (19-l) pails.

STORAGE / SHELF LIFE

Storage life is 24 months from the date of manufacture, when unopened, undamaged original container is properly stored in a cool and dry place, unexposed to moisture and sunlight. Always tightly reseal container after use. DO NOT ALLOW TO FREEZE!

SAFE HANDLING INFORMATION

Before using this product, review the PENESEAL™ FH-PS Safety Data Sheet (SDS). Avoid contact with eyes and wear suitable protective eyewear. Avoid prolonged or repeated contact with skin. Wear gloves and suitable protective clothing. Do not breathe dust. In case of insufficient ventilation, wear respiratory equipment. For additional information regarding first aid and emergency procedures, refer to the product Safety Data Sheet (SDS). Waste disposal: This product, when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose in a landfill in accordance with local regulations. KEEP OUT OF REACH OF CHILDREN

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PENESEAL FH-PS
Products and systems for the protection and repair of concrete structures - Protection against penetration Class 1.2 (I) and increasing of physical resistance Class 5.2 (I)
Capillary water absorption: < 0.1 $kg/m^2h^{0.5}$
Abrasion resistance: NPD
Penetration depth: ≥ 5 mm
Impact strength: Class I (≥ 4Nm)
Bond strength by pull-off: ≥ 1.5 MPa
Reaction to fire: NPD
Dangerous substances: NPD

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