

# PENESEAL™ FH (1:1 Concentrate)

FLOOR HARDENER, DUSTPROOFER AND CURING AID

## DESCRIPTION

PENESEAL™ FH is a clear, reactive penetrating sealer for concrete and masonry building materials designed to permanently protect, preserve and strengthen them. PENESEAL™ FH 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.

## APPLICATIONS

Any cementitious based substrate such as, but not limited to: concrete, terrazzo, heavyweight concrete block, plaster, stucco or mortar.

Warehouses  
Hangars  
Distribution and storage facilities  
Food processing plants  
Manufacturing facilities  
Any type of facility with exposed concrete flooring

## ADVANTAGES

**Curing:** PENESEAL™ FH allows concrete to cure uniformly through its chemical and moisture retention reaction. This aids in a more complete hydration process and reduces hairline and temperature cracking.

**Sealing:** PENESEAL™ FH penetrates deep into the concrete, which allows its chemical reaction to lock the pores from within, providing an integral and permanent seal.

**Hardening:** PENESEAL™ FH binds the elemental parts of the concrete, solidifying them into a denser, tougher, harder mass. This results in a more durable concrete with higher surface abrasion resistance and compressive strength.

**Dustproofing:** PENESEAL™ FH densifies the surface of the concrete through its chemical bonding and flushing of the weaker concrete salts and minerals. This permanently seals the surface and eliminates surface dusting.

**Protection from efflorescence and leaching:** PENESEAL™ FH penetrates deeply into concrete, neutralizing the alkali salts and minerals that cause efflorescence and salt leaching. These weakening salts and minerals are forced to the surface and flushed away during the application process.

**Improved Bonding:** PENESEAL™ FH eliminates the alkali salts and minerals that weaken and delaminate surface coatings. PENESEAL™ FH leaves the concrete surface free of these salts and minerals, which improves bonding of any type of covering.

**Non-Toxic:** PENESEAL™ FH is non-toxic and is not harmful to lungs or hands. Complies with all VOC and USDA regulations.

## TECHNICAL DATA

### Applicable standards:

**Abrasion:** ASTM C779 - 80.9% increase in abrasion resistance.

**Bonding:** ASTM D3359 - 60% increase in epoxy adhesion. 50% increase in polyurethane adhesion.

**Curing:** 61% greater moisture retention during the initial critical 24 hour curing period, as compared to untreated samples.

**Hardening:** ASTM C39 - 40% increase in compressive strength 7 days; 38% increase at 28 days over untreated samples. ASTM C805 (Schmidt hammer) - 16.1% increase in impact resistance.

### Permeability:

Approximately 98% reduction in permeability at 100 psi

### Weathering:

ASTM G23 - ultra-violet light and water spray exposure had no adverse effect on PENESEAL™ FH treated samples.

### Coverage:

Approximately 200 sq ft per gallon (5 m<sup>2</sup>/L) of diluted concentrate. Coverage can vary depending on the temperature and porosity of the concrete.

**NOTE:** Test results obtained under controlled laboratory conditions at 73°F (23°C) and 50% relative humidity unless otherwise specified. Reasonable variations can be expected due to atmospheric and job site conditions. General soundness of the concrete substrate (porosity, strength, absorption ...etc) as well ambient conditions, as already noted, may yield varying results.

## SHELF LIFE / STORAGE

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!

## PACKAGING

5-gallon (19-l) containers, 55-gallon (208-l) drums and 275-gallon (1041-l) totes.

## DIRECTIONS FOR USE

### Surface preparation:

Surfaces to be treated should have an open pored surface so that PENESEAL™ FH can be absorbed. Remove all coatings, form oils, curing or sealing agents through chemical or mechanical means. Remove dust, dirt, laitance or any other contaminants 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 before it is able to penetrate the surface.

### Mixing:

**PRIOR TO USE,** agitate bucket or drum and thoroughly mix PENESEAL™ FH with clean water in equal parts by volume.

### Application methods:

Spray or pour followed by brooming or squeegeeing to saturate the surface.

### Tools:

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

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## For new concrete:

**Step 1.** Apply PENESEAL™ FH immediately following the concrete finishing, 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 for 30 minutes, working it into the surface with a soft-bristled broom.

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

**Step 3.** As PENESEAL™ FH again becomes slippery underfoot, thoroughly flush the entire surface with water and squeegee the surface completely dry to remove all surface alkali or PENESEAL™ FH residue. On exterior broom finished surfaces, no flushing is required, but any remaining PENESEAL™ FH must be squeegeed or broomed from the surface after 30-40 minutes. Do not allow PENESEAL™ FH to dry on the surface.

## For old concrete (All cured surfaces):

**Step 1.** Saturate the surface with PENESEAL™ FH so 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 has been absorbed into the surface, broom or squeegee any excess material from all low spots and puddles so all remaining PENESEAL™ FH is totally removed from the surface. Porous surfaces may require an additional application of PENESEAL™ FH to achieve maximum protection.

**Step 2 (Option 2).** If after 30-40 minutes the majority of PENESEAL™ FH 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 residue.

## General application notes:

**Application temperature limits:** 40°F to 100°F (4°C to 38°C). The reaction of PENESEAL™ FH will be slowed at low temperatures. In these cases, the concrete should be protected from freezing for six days.

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

**Number of applications required:** Typically only one application is required. An additional application may be required on porous substrates to achieve maximum performance.

**Time requirement for curing, sealing and hardening:** 60-90 days. PENESEAL™ FH 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.

**Color:** Clear. PENESEAL™ FH 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.

**Sheen:** 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, 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.

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

**Duration of effectiveness:** PENESEAL™ FH is permanent. The concrete durability and appearance improves with age.

**Clean up:** Clean all equipment with water only. Do not use thinners.

## 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.

## SPECIAL CONSIDERATIONS

- Do not use PENESEAL™ FH on extremely porous masonry, such as lightweight block.
- Do not apply PENESEAL™ FH to frozen or freezing surfaces or when temperature falls below 40°F (4°C) or if temperatures will drop below freezing during the curing period (approximately 24 hours).
- Prevent PENESEAL™ FH 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 treated surfaces can become slippery during application. Exercise caution and wear appropriate footwear and protective clothing.
- PENESEAL™ FH is not a vapor barrier.
- Apply to colored concrete only after the slab is fully cured.

## SAFE HANDLING INFORMATION

Before using this product, review the PENESEAL™ FH Safety Data Sheet (SDS) that can be found on our website: [www.penetronsp.com](http://www.penetronsp.com). Avoid contact with eyes and wear suitable protective eye wear. Avoid prolonged or repeated contact with skin. Wear gloves and suitable protective clothing. Do not breathe dusts or mists. 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 material must be discarded or disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

KEEP OUT OF REACH OF CHILDREN

**WARRANTY:** PENETRON SPECIALTY PRODUCTS INC. warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON SPECIALTY PRODUCTS INC. shall be limited to replacement of the material proven to be defective and PENETRON SPECIALTY PRODUCTS INC. shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON SPECIALTY PRODUCTS INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.** User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

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**PENETRON SPECIALTY PRODUCTS INC.**  
601 S. 10th Street, Unit 300, Allentown, PA 18103  
(631) 941-9700 • [info@penetronsp.com](mailto:info@penetronsp.com) • [penetronsp.com](http://penetronsp.com)