

# PENESEAL™ FH-PS

POLYSILICATE-BASED REACTIVE HARDENER, DENSIFIER AND SEALER

## 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.

## APPLICATIONS

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

### Flash point:

Does not flash

### Drying time:

1-2 hours

### Mechanical properties after 7 days of full cure:

Results may vary depending upon concrete mix design and concrete porosity.

**Abrasion (ASTM C779):** Up to 81% increase in abrasion resistance

**Bonding (ASTM D3359):** Up to 60% increase in epoxy and polyurethane adhesion

**Hardening (ASTM C39):** Up to 40% increase in compressive strength

**Schmidt Hammer (ASTM C805):** Up to 16% increase in impact resistance

### Curing:

>60% reduction moisture retention during initial 24 hours.

### Permeability:

Approximately 98% reduction in permeability at 100 psi.

### Weathering (ASTM G2381):

No adverse effect on exposure to UV light.

### Coverage:

Approximately 400-500 sq ft per gallon (10-12 m<sup>2</sup>/L). Coverage can vary depending on the temperature and porosity of the concrete.

**NOTE:** Cooler temperatures, inadequate ventilation and higher humidity can extend drying times. All data derived from tests under laboratory conditions; field conditions may yield slightly different results. 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

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

## DIRECTIONS FOR USE

**Mixing:** PRIOR TO USE, agitate bucket or drum.

**Note:** PENESEAL™ FH-PS is ready to use and not to be diluted with water.

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**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.

**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 contaminants by sweeping all areas to be treated with a soft-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.

#### **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-bristle 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:**

**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):** 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.

#### **GENERAL APPLICATION NOTES**

**Application temperature limits:** 40°F to 100°F (4°C to 38°C). 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:** 1-3 hours. The surface can be used as soon as the application is complete and the surface is dry to the touch.

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**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:** 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.

**Color:** 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.

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

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

## 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

- Protect glazed and finished surfaces, such as glass and aluminum from PENESEAL™ FH-PS. In case of contact, flush immediately with water.
- Do not apply PENESEAL™ FH-PS to frozen or freezing surfaces or when temperatures fall below 40°F (4°C) or if temperatures will drop below freezing during the curing period (approximately 24 hours).
- 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.

## JOB MOCKUPS

Penetron Specialty Products recommends that when our products are used in any application or as part of any system that includes other manufacturers' products, the installer and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any installation. Written documentation of the tests performed shall be satis-

factory to the design professional and installer. Test results must include the means and methods of application, products used, project specific conditions being addressed, and standardized tests performed for each proposed system or variation.

## 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

**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 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.

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 and guidelines for the proper use and application of Penetron Specialty Products under normal environmental and working conditions. Because each project is different, PENETRON SPECIALTY PRODUCTS INC. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

**PENETRON SPECIALTY PRODUCTS INC.**

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