Spray-Lock®
CONCRETE PROTECTION

PRODUCT DATA SHEET

P3 INDUSTRIAL

5959 Shallowford Road, Ste. 405
Chattanooga, TN 37421
423.305.6151
SCPTech@spraylock.com
concreteprotection.com

P3 Industrial is a spray-applied product which uses Spray-Lock Concrete Protection (SCP) colloidal silica technology to provide a permanent increase in the durability and lifespan of Portland cement concrete.

TYPICAL APPLICATION RATE

Concrete
200 ft² per 1 gallon
(4.9 m² per 1 liter)

Shotcrete
160 ft² per 1 gallon
(3.9 m² per 1 liter)

PERFORMANCE

Test Method Standard	Typical % Improvement
ASTM C1556 BULK CHLORIDE DIFFUSION	48%
ASTM C666 FREEZE/THAW	49%
ASTM E96 WATER VAPOR TRANSMISSION	81%
EN 12390-8 DEPTH OF HYDROSTATIC PEN.	97%
ASTM C1803 ABRASION RESISTANCE	50%

ABOUT THIS PRODUCT

SCP technology penetrates into the accessible capillary system, reacting with the available free alkali, primarily forming calcium silicate hydrate (C-S-H). This action waterproofs the matrix of the concrete. P3 Industrial can be used as the choice for curing and protection on fresh concrete, or to treat existing clean, hardened, permeable concrete.

P3 Industrial protects the concrete throughout the treated area without forming a membrane. The treated concrete better resists deterioration from biological and environmental attack. Permeability reduction provides improved resistance to impacts from salts, waste, efflorescence, and carbonation.

P3 Industrial can be used as the protection of choice, part of an overall system for waterproofing exterior concrete, or to treat and condition concrete that will receive breathable coatings or industrial paints. Potential uses include shotcrete, stucco, architectural, and other structures.

P3 Industrial provides permanent concrete protection while also providing improved conditions for concrete performance.

Recommended Equipment for Applications

Important: When using an airless sprayer on freshly placed concrete, be sure to adjust pressure settings so that no surface 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 0.019-0.021 inches (0.48-0.53 mm) for vertical or overhead applications and fan tip spray size of 0.024-0.031 inches (0.61-0.79 mm) for flatwork applications.

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 0.30-0.60 gallons per minute (1.14-2.27 liters per minute) for vertical or overhead applications and fan tip spray size of 0.50-1.0 gallons per minute (1.89-3.79 liters per minute) for flatwork applications. A backpack or Hudson type sprayer should be used if only applying one bucket or fewer of material.

Recommended Application Method

Important: Spray in a 50% overlapping pattern.

For slab applications, hold wand perpendicular to the surface and spray 6 inches (15 cm) from the surface. Apply product using the prescribed application rate for the area. If pooling or dry areas are observed while applying, use a 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 excess P3 Industrial product with a foam squeegee, broom, wet vac, or mop.

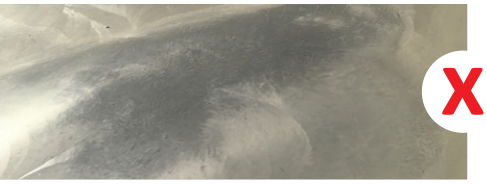
Note: Product not removed from the slab may become slippery in a wet condition.

Treated area can be opened to foot traffic one hour after treatment and all heavy equipment traffic 24 hours after treatment.

For vertical and overhead applications, hold sprayer wand perpendicular to the surface and spray 6 inches (15 cm) from the surface. Very light and repeated spray passes should be made over the same area using the prescribed application rate. For vertical application, begin at the bottom and go to the top.

Time of Placement

P3 Industrial can be used at the time of placement. Application should be performed after final troweling has been completed and concrete can take foot traffic without damage. Final concrete finish must be unburnished prior to application.



Concrete Finish

The concrete surface finish is a key part of the P3 Industrial 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), avoiding a burnished or black surface finish. P3 Industrial needs a porous (open-matte) finish to penetrate into the concrete and perform as intended. SCP recommends observing the concrete finishers during the finishing process to ensure the concrete is not burnished.

P3 Industrial can be applied to hand finished surfaces, broom finished surfaces, and bull floated surfaces.

Note: Extra time may need to be allowed for concrete to set on broom finished surfaces to ensure no damage to concrete from foot traffic.

Accelerators

Accelerators are often used during colder months to accelerate the setting of the concrete. These admixtures will also accelerate the action of P3 Industrial. If these admixtures are used (check batch tickets), applicators should test a small area prior to a full application. Tests should be conducted periodically. A test section measuring approximately 3 ft x 3 ft (0.914 m x 0.914 m) is recommended. Apply P3 Industrial product to this area and wait 15 minutes. If the P3 Industrial product begins to appear milky and turns into a gel or feels very slippery, then the accelerator is still active. Re-test until the product remains unchanged from its normal consistency. Once P3 Industrial remains unchanged on a test area for a minimum of 15 minutes, full application can begin.

Existing Concrete

The concrete surface needs to be structurally sound. If there are any concerns, consult with an engineer on the project or consult with a structural engineer. Any weak or degraded concrete surface or concrete exhibiting signs of scaling, delamination, or spalling must be mechanically removed to achieve a solid substrate. The concrete should be free of contaminants such as dirt, wax, oil, grease, curing compounds, adhesives, paint, or any other material that could prohibit P3 Industrial from entering the concrete matrix. Always perform a water absorption test to determine if the product will be able to penetrate into the concrete surface.

Water Absorption Testing

On existing concrete, always perform a water absorption test to determine if P3 Industrial will be able to penetrate into the concrete surface. There are standards that describe a method for testing water absorption, such as ASTM F3191. An alternative would be to outline a penny with a pencil and place 5 drops of water inside the marked outline. Monitor the water to

see if the water is penetrating into the concrete or moving outside the outline. After two (2) minutes, the water should be absorbed into the concrete without having any bubbling or sheen when viewing the area. The contractor is responsible for choosing the test method and quantity of testing.

Admixtures

The use of moisture vapor reducing admixtures (MVRA), integral waterproofing admixtures, or latex admixtures ***should not be used*** when utilizing P3 Industrial spray-applied technology.

Topically Applied Concrete Products

There are many concrete additives on the market. Some of these will work in conjunction with P3 Industrial, some will not.

If a monomolecular evaporation retarder (MMER) is used on the concrete, the MMER should be applied in accordance with the manufacturer's recommendations.

When specified, curing compounds (ASTM C309 or ASTM C1315 products) can be used but should only be used after the P3 Industrial product application. If a curing compound is used prior to the P3 Industrial product application, remove the curing compound prior to treatment.

ENVIRONMENTAL CONDITIONS

Hot Weather

One of the challenges of hot weather applications is rapid evaporation and unwanted gelling. SCP recommends pre-wetting concrete when surface temperature is above 90°F (32.2°C). Pre-wetting consists of spraying a light coat of water directly in front of P3 Industrial product application. This process helps in preventing rapid evaporation of P3 Industrial from the surface of the slab, allowing for better penetration into the hot concrete. P3 Industrial should be removed before allowing to dry on the slab.

Cold Weather

Challenges faced during cold weather applications include low temperature application, accelerator addition, and shorter days. The minimum air and concrete temperature at which P3 Industrial can be applied is 35°F (1.7°C) and rising. If an accelerator is used in the concrete mix, test a small area as described in the Accelerators section of this document. With shorter days during the winter months, longer set times could push P3 Industrial application to a later time when temperatures are too cold. Application may need to take place the following morning. If this is the case, the concrete company may need to protect the concrete with blankets or other means.

Rain Event

A rain event is defined as liquid precipitation that is sufficient enough to cause standing water on the concrete structure. If a light mist is observed that causes no standing water, this is not considered a rain event and application does not require interruption.

If a rain event begins during an application, the portion of the slab that has been treated and squeegeed off is considered treated. If a portion of the slab is being treated and not squeegeed when it rains, P3 Industrial will need to be reapplied after rain the has stopped. Mark the area last treated so that you have a reference on where to resume application after the rain event. After rain has stopped, the slab should be squeegeed to remove all standing water. Application can continue as normal, beginning after the last treated section of the slab.

PRODUCT ATTRIBUTES

Color
Translucent White

Odor
None

Specific Gravity
1.10

pH
11.5 +/-

Flammability
0 (non-flammable)

VOC/VOS Content
0.0 g/ml

Clean-up Solvent
Water

Environmental Impact
None/Neutral

User Status
Friendly

POST-APPLICATION

Traffic

Foot traffic is allowed one hour after application. Equipment traffic is allowed after 24 hours or when the design professional decides the concrete is strong enough to handle the load.

Control Joints

SCP requests that control joints are cut ***after*** P3 Industrial has been applied. If the control joints are cut prior to the placement of P3 Industrial, the area will need to be cleaned to remove the residue dust from the cutting. ***P3 Industrial can react with the dust creating a slick surface.***

NOTES

- Like fresh concrete itself and other alkaline materials, product may etch glass, shiny aluminum, and brass if left to dry on the surface. Simply remove while wet.
- ***DO NOT*** apply on frozen substrate
- Joints, cracks, and penetrations should be addressed separately as part of the overall waterproofing plan.
- When applying a coating or industrial paint to P3 Industrial-treated concrete:
  - New concrete: please follow all procedures required by product manufacturer.
  - Existing concrete: wait a minimum of 3 days.

Packaging/Storage

P3 Industrial is packaged in 5, 55, and 275 gallons. Product shall ideally be stored in a location that is dry and between 35°-100°F (2°-38°C) ambient temperature. Optimal storage is at the middle of the temperature range. Protect from freezing and direct sunlight. 5-year shelf life under proper storage conditions.

General Information

For safe handling information on this product, see the Safety Data Sheet (SDS).

Product Warranty

SCP warrants the product to be free from material defects provided that the product was sold within its identified shelf life and stored according to guidelines on product packaging. SCP's sole liability shall be limited to the purchase price paid by the customer for P3 Industrial for the quantity of defective material.

Mock-ups, testing, or sample applications to determine fitness of products for a particular use are the responsibility of the user. In-house and independent testing supports the instructions and claims made in this document. Due to the variation in job conditions, surface preparations, concrete substrates, and application methods, SCP cannot ensure uniformity in product performance.

QUESTIONS? 423.305.6151
SCPTech@spraylock.com