Technical Data Guide
PHOSCRETE ENDURE™
Soy Methyl-Ester Polystyrene: SME-PS

PHOSCRETE ENDURE [SME-PS] is a Long-Term Concrete Durability Enhancer

- SME-PS is a cost effective, high performance, non-hazardous, concrete durability enhancer for all densities of concrete, new or old.
- Can be applied topically in place of common penetrating sealers, however, it performs very differently.
- SME-PS is absorbed into the pores to block fluid penetration from the inside. It is a self-sealing fluid, filling and protecting additional cracks as they form.
- It is a long-term (10+ years) durability enhancer protecting concrete from premature damage that caused by moisture, salt, deicing & freeze/thaw conditions. SME-PS fills pores & creates a flexible, continual self-sealing, hydrophobic barrier that is both preventative & curative.

PRODUCT HIGHLIGHTS

- Easy one-step application for 10+ year protection
- Defends concrete from moisture ingress
- Blocks ion transfer into concrete: Ca, Cl, Mg, etc.
- Prevents Calcium Oxychloride formation
- Arrests ASR (Alkali-Silica Reaction) deterioration
- Inhibits staining & rebar corrosion.
- Non-toxic, non-flammable, environmentally safe
- No PPE required
- Inhibits spalling, scaling, efflorescence
- Impedes FOG (fat/oil/grease) buildup in pipes which in turn prevent early concrete deterioration.
- Extend the service life of concrete 5X-9X, that of untreated concrete
- Replacement cost savings
- Reduce downtime for repair/replacement

APPLICATIONS

- New or old concrete
- Horizontal or vertical structures
- Above or below grade
- Exterior/interior
- High density or low-density concrete
- Precast or prestressed concrete
- Mortar/blocks/pavers

TECHNICAL DATA

Chemical Name: soy methyl ester-polystyrene

FORM	pale yellow liquid
SPECIFIC GRAVITY	.88
WEIGHT	7.3 lbs/gal
ACTIVE CONTENT	100%
TOTAL SOLIDS	negligible
VOC g/L	43.3 g/L
BOILING POINT	>200 °C
FLASH POINT	130 °C
VISCOSITY	8.5 cps at 23°C
SHELF LIFE	18 months - properly stored
BIOCONTENT	93%
GHS HAZARDS	none
ECOTOXICITY	The product is not classified as environmentally hazardous
SOLVENCY	59 KB (kauri-butanol value)
PACKAGING	1 GAL, 5 GAL, 55 GAL, 250 GAL
WATER SOLUBILITY	Insoluble

REGULATORY COMPLIANCE

- Low VOC (43.3 g/L): meets national standards for EPA VOC, as well as CARB, SCAQMD, OTC, & AIM

CERTIFICATIONS

- USDA BioPreferred and Mandatory Federal Purchasing Certified

COVERAGE

- Coverage varies greatly with the porosity of the concrete. For high density concrete coverage averages 180 sq ft/gal. For low density concrete coverage averages 140 sq ft/gal. Extremely porous substrates may require 2 coats.
- Perform test sections to ensure desired results and coverage rates.
- SME-PS will darken concrete after one application, so no pigment indicator is required.

TEST FOR EXISTING SEALER

- If the concrete surface has been previously sealed, and the seal is intact, SME-PS should NOT be applied.
- However, previous sealants do break down over time, at which point it is safe and recommended to apply SME-PS.
- To determine the presence of a sealer, perform a simple "water test".
  - Pour several ounces of water in several test areas; you will notice that the water "beads up", i.e., forms droplets, or it could just spread out on the surface.
  - "Beading up" is an indication that the concrete has an intact seal. DO NOT APPLY SME-PS to this surface.
- If the water simply spreads and does not bead up, then it is safe to apply SME-PS.

APPLICATION TEMPERATURE

- Ideal temperature for applying SME-PS is between 20F and 120F.

EQUIPMENT

- SME-PS can be applied by using a power sprayer, backpack sprayer, roller or brush.

PREPARATION

- Do not apply to surfaces which are frozen, dirty or have standing water. Surfaces must be clean, dry and absorbent.
- Do not apply over fully painted concrete surfaces. (lane lines are not a concern)
- Cleaning: The treatment surface should be cleaned of dirt and loose debris. For best results, the treatment area may be blown clean and dry using compressed air.
- If there are stains or marks on the surface that are of concern, these should be power washed away prior to treatment (and then allowed to dry). If not removed prior to treatment, the stain will pull into the pores with SME-PS and become difficult to remove in the future.

NEW CONCRETE

- Verify substate has properly cured. Concrete should obtain 80% of design strength, typically achieved in 14-28 days
- Clean surface of sand, dust, or debris. Use blower to create clean surface.
- Surface should be dry; typically, 24 -48 hours after last exposure to water.

EXISTING CONCRETE

- Verify concrete is coating free: old sealer or paint.
- Clean surface of sand, dust, dirt, oil, grease, Use blower, power wash, sand blast or means necessary to leave clean surface.

JOINTS

- To prepare new or existing pavement joints for treatment remove any existing joint fillers or debris build-up
- For best application joint faces should be fully exposed and dry

DILUTION & MIXING

- Do not dilute or alter. Use as supplied

GENERAL APPLICATION

- Ideal temperature for applying SME-PS is between 20F and 120F.
- SME-PS can be applied by using a sprayer, roller or brush.
- Using a sprayer, apply a single coat sufficient to wet the surface without producing puddles.
- If the product is absorbed immediately apply a second coat.
- Allow treated surfaces to dry (See ABSORPTION & DRY TIME)

JOINT APPLICATION

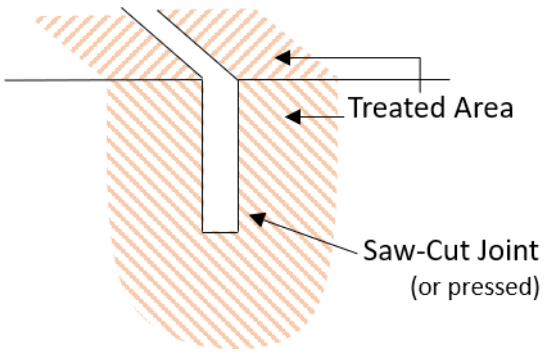
- To prepare new or existing pavement joints for treatment, remove any existing joint fillers or debris build-up
- For best application, joint faces should be fully exposed and dry

HOW TO APPLY

- When applying to joints use two passes
- The first with spray pattern perpendicular to joint to create overspray of 3"-12" on each side
- The second with the spray pattern parallel to the joint to spray as directly as possible on interior joint faces
- SME-PS will create a reservoir within the joint, providing deep penetration in the critical areas at the base of the joint

SURFACE & AIR TEMPERATURES

- Do not apply when the temperature is consistently below the dew point to avoid condensation in the pores which will slow absorption of SME-PS



SURFACE APPLICATION

- To prepare new or existing concrete surfaces for SME-PS application, ensure the that the area is dry and free of debris
- If there are existing stains it is recommended that they be removed prior to application. If SME-PS is applied over stains they can become difficult to fully remove

HOW TO APPLY

- When applying to surfaces, application can be done in a single coat if even coverage is monitored
- SME-PS will pool in any low spots. These areas will be the last to fully absorb

SURFACE & AIR TEMPERATURES

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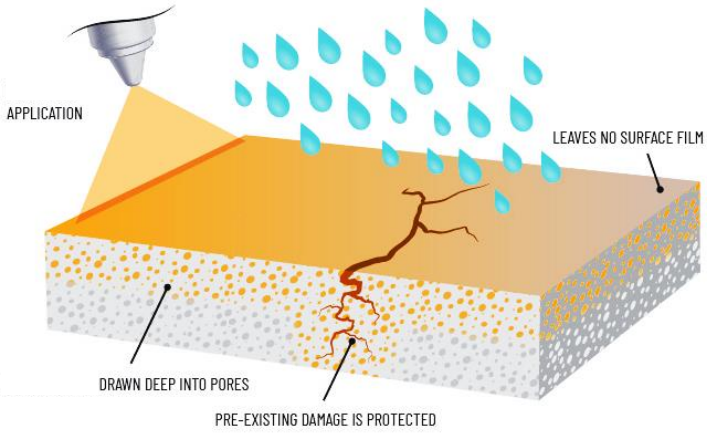

ABSORPTION & DRY TIME

OVERVIEW

- When applied topically, SME-PS is absorbed into concrete pores. It does not undergo a chemical reaction or solidify; it remains fluid and does not leave a film on the surface once absorbed.
- Immediately after application the surface may appear blotchy as the SME-PS finds areas with more voids/pores. This diminishes over time. And can take 2-3 weeks to fully even out. After application, SME-PS is not visible on the surface and there is no hydrophobic beading effect.
- Fluids spread thin and evaporate. SME-PS blocks the driving force of capillary action stopping absorption cycles, preventing damage.

ABSORPTION/DRY TIME

- Initial absorption time on average is 4 hours. Full absorption is typically 24 hours.
- If rain occurs before 4 hours, reapply when the concrete is dry.
- Concrete is highly variable in its composition. Therefore, absorption time will vary widely. Absorption begins immediately upon application.
- Area treated will be closed to traffic until absorbed. Typically, full coverage is absorbed within 24 hours, but concrete surfaces may have a mottled appearance for up to 14 days after application.
- Joints with 6" overspray absorb in 6 hours on average.
- Once absorbed, the concrete has no visible change in color or appearance. The surface texture and form are as they were pre-application. SME-PS is absorbed below the very top layer of the concrete.
- Contractors typically close one lane, apply SME-PS and then 24 hours later repeat with the other lane. Because application is fast and clean-up is simple, this has not been a deterrent for application.
- In some very dense (less porous) concrete, the absorption may take 36 hours.

PAINT & ADHESION

- Once absorbed, the concrete has no visible change in color or appearance. The surface texture and form are as they were pre-application.
- SME-PS is absorbed below the very top layer of the concrete.
- Paint or other coatings may be applied. SME-PS will not affect adhesion

MAINTAINENCE

- Clean surface as routinely done.
- Feedback from the field indicates that cleaning is faster and easier because SME-PS prevents dirt from absorbing into the concrete.

CLEAN-UP

- Use soap and water to clean equipment, hands and surfaces. No petroleum-based solvents needed.

LONGEVITY

- To maintain best results, reapply every 10 years

DISPOSAL

- SME-PS is not hazardous, but excess quantities should be disposed of responsibly per state and or federal guidelines.

TEST DATA

Freeze/Thaw Durability (Relative Dynamic Modulus)	96% After 300 Cycles (Failure Threshold 60%)	ASTM C 666
Salt Scaling Resistance (VRI, mass loss)	VRI: 0 Mass Loss: 0.01 lb/sq ft.	ASTM C 672
Water Absorption (%)	70% Reduction in water absorption	ASTM C 1585
Chloride Ion Diffusion (% Reduction vs. Untreated)	35 % Cl- reduction @ 0.0625"-0.5" below surface 60% Cl- reduction @ 0.5"-1.0" below surface	AASHTO T 259
Service Life Analysis (Multiplier vs. untreated)	5.4x in concrete with fly ash 9.0x in concrete without fly ash	Independent D.o.T. Study

SAFETY INFORMATION

- Non-toxic profile keeps workers safe (no PPE required)
- Safe for the environment: land, air & water. No concern for overspray into waterways or land.
- TSCA listed materials; Hazard free SDS
- Provides environmental/public health benefits by replacing traditional toxic products, reducing VOCs by 83-93%

PHOSCRETE CORPORATION

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