



Division of Sierra Corporation

TK-590-1 MS TRI-SILANE

Meets Federal EPA's VOC Requirements

Technical Data

1. PRODUCT NAME:

TK-590-1 MS TRI-SILANE

2. MANUFACTURER

TK PRODUCTS, DIVISION
OF SIERRA CORPORATION

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3. PRODUCT DESCRIPTION:

Tri-Silane is a, one-component, deep penetrating, invisible, non-darkening treatment for concrete. Tri-Silane is a alkyltrialkoxo silane, 100% reactive penetrant, designed to prevent the intrusion of water and waterborne salts into concrete and masonry substrates.

Tri-Silane is designed to surpass the performance criteria of NCHRP #244 for protection of concrete against the intrusion of chlorides. Tri-Silane works by chemically bonding a silicon atom to a water repellent alkyl group and organophilic water sensitive ester groups. Through this chemical reaction the substrate becomes hydrophobic and therefore molecularly structured within the cementitious surface.

Tri-Silane uses the moisture, present in concrete, to produce the hydrophobic substrate. Through this reaction, the silanol groups chemically bond themselves to the concrete, thus eliminating the ever present moisture that had previously engulfed the cementitious material.

Therefore Tri-Silane is chemically bonded within the substrate, not just physically bonded like other surface penetrating sealers.

Uses:

Tri-Silane can be used to protect and seal any clean and dry cementitious surface.

Applications:

- Bridge decks
- Parking structures
- Piers and pilings
- Bridge seats
- Commercial buildings and warehouses

Features and Benefits:

- Chemically bonds to concrete
- Very low viscosity
- Allows substrate to breathe.
- Prevents structure damage from trapped water
- High penetration
- Does not darken, stain or gloss the substrate

4. TECHNICAL DATA:

Composition: a alkyltrialkoxo silane with a mineral spirits carrier.

- Solids content: 40%*
- Weight per gallon: 6.9 lbs.
- Flash Point: 102 F.
- Viscosity: 16-18 Sec. Z2
- Passes:
- ASTM 672-76 freeze/thaw cycle
- ASTM 642-75 Water absorption test
- AASHTO T259
- AASHTO T260-78 Chloride Penetration
- NCHRP #244 Series II & IV
- A.I.M. Category - Waterproofing Sealer and Treatment - maximum VOC 600 g/l.

-A.I.M. Definition: A coating formulated and recommended for application to a porous substrate for the primary purpose of preventing the penetration of water.

Tri-Silane was evaluated as a protective penetrant on portland cement concrete. Test were conducted by Wiss, Janey and Elstner Associates, Inc. using the techniques recommended in NCHRP Report No. 244. NCHRP 244 Report Series II Test, and CTL for Series IV Test, results shown in table 1.

Limitations:

Tri-Silane should not be used below grade, or under hydrostatic pressure. A mock-up panel should always be applied to determine compatibility with substrate and application coverage rate. Useable temperature range is 35° to 90° F. Minimum cure temperature - 35° F.

5. APPLICATION PROCEDURES AND INSTRUCTIONS

Preparations:

Surfaces must be clean, free of dirt, paint, grease, oil, rust, laitance and other contaminants. **Old Concrete:** Remove unsound concrete and repair deteriorated areas and cracks. Surfaces may need to be mechanically abraded to get maximum penetration. **New concrete:** Water cure fresh concrete or use TK-2519DC WB, a dissipating curing compound. New concrete must be dry to the dept of penetration you are looking to achieve.

Application:

Tri-Silane should be used directly from the container. Do not dilute. Application can be made with a roller, brush, squeegee, or an industrial sprayer. When applying Tri-Silane, the surface must stay moist briefly to assure complete coverage and saturation. Any puddles should be broomed out.

For vertical surfaces apply a light spray to break the surface tension of the wall. Follow immediately with a flood coat. Apply horizontally with plenty of over lap with enough material to cause a 6 to 8 inch rundown. Fully saturate all mortar joints.

Tri-Silane is combustible, all safety precautions must be adhered to at all times. Only apply in well ventilated area, no smoking, turn off all pilot lights. Wear protective goggles, gloves and respirators.



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TK-590-1 MS TRI-SILANE
Concrete Sealer & Water Repellent

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NCHRP 244 Report table 1

TK-590-1 MS Tri-Silane	Minimum Requirement	Series II	Series IV Test Southern Exposure	Competitive Silane
% Reduction in Water Absorption	75	87		83
% Reduction in Cl Intrusion	75	93	98	84
Depth of Penetration, Inch	-	.08		.12
% Water Vapor Transmission	100	100.22		100.16

Coverage:

Coverage Rate*:

Recommended coverage rate for TK-590-1 MS TRI-SILOXANE is 150 square feet per gallon on most concrete substrates. Very porous surfaces may require 2 coats of TK-590-1 MS TRI-SILOXANE.

TK-590-1 MS TRI-SILOXANE

Surface Type SF/G

Bridge Decks/Ramps	150-200
Smooth Concrete	150-225
Resealing Bridge	
Decks/Ramps	150-300
Exposed Aggregate	100-200
Concrete Block	50-100
Brick, Stone	60-200

*Coverage rates are provided as a guideline only. The texture and absorption characteristics of the surface will determine actual coverage rates.

Cleanup:

Clean up tools with mineral spirits or TK-00 or TK-02 solvent .

First Aid:

Inhalation: Remove person to fresh air, give artificial respiration if not breathing. GET MEDICAL HELP. *Eye and Skin Contact:* Wash with large quantities of clean water for 15 minutes. *Ingestion:* Do not induce vomiting. GET MEDICAL HELP. Use with adequate ventilation.

6. AVAILABILITY:

TK-590-1 MS Tri-Silane is available through TK Distributors. Contact TK Products for the nearest distributor. Packaged in 55 gallon drums, 5 gallon pails, and one gallon cans.

7. LIMITED WARRANTY

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8. TECHNICAL SERVICES

The TK office offers assistance with specifications, performance test data and field services.

9. FILING SYSTEMS

Information Handling Services
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 Oak Park, MI 48237

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