

# TK-590-1 MS TRI-SILANE

Meets Federal EPA's VOC Requirements



Division of Sierra Corporation  
ISO 9001:2008 Certified

## Technical Data

### 1. PRODUCT NAME:

TK-590-1 MS TRI-SILANE

### 2. MANUFACTURER

TK PRODUCTS  
DIVISION OF SIERRA CORPORATION  
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Website: <http://www.tkproduct.com>

### 3. PRODUCT DESCRIPTION:

TK-590-1 MS TRI-SILANE is a one-component, deep penetrating, invisible, non-darkening treatment for concrete. TK-590-1 MS TRI-SILANE is an alkylalkoxy-silane, 100% reactive penetrant, designed to prevent the intrusion of water and waterborne salts into concrete and masonry substrates.

TK-590-1 MS TRI-SILANE is designed to surpass the performance criteria of NCHRP #244 for protection of concrete against the intrusion of chlorides. TK-590-1 MS 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.

TK-590-1 MS 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 TK-590-1 MS TRI-SILANE is chemically bonded within the substrate, not just physically bonded like other surface penetrating sealers.

### BASIC USES:

TK-590 TRI-SILANE can be used to protect and seal any clean and dry cementitious surface.

### APPLICATIONS INCLUDE:

- Parking Structures
- Bridge Decks
- 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:** an alkyltrialkoxo silane with a mineral spirits carrier.

- % Actives: 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.

TK-590-1 MS TRI-SILANE was evaluated as a protective penetrant on portland cement concrete. Tests were conducted by Wiss, Janey and Elstner Associates, Inc. using the techniques recommended in NCHRP Report No. 244. NCHRP 244 Report Series II Test. Results are shown in Table 1 (on back).

### LIMITATIONS:

TK-590-1 MS 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 is 35° F. Do not apply if rain is expected within 4-6 hours of application.

### 5. APPLICATION PROCEDURES AND INSTRUCTIONS

#### PREPARATIONS:

All surfaces must be clean, free of dirt, paint, grease, oil, rust, laitence 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. As a standard procedure, fresh concrete should be allowed to thoroughly cure before applying TK-590-1 MS TRI-SILANE.

#### APPLICATION:

TK-590-1 MS 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 TK-590-1 MS 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 and enough material to cause a 6 to 8 inch run-down. Fully saturate all mortar joints.

TK-590-1 MS TRI-SILANE is combustible, all safety precautions must be adhered to at all times. Only apply in well ventilated areas, do no smoke in the area, and turn off all pilot lights. Wear protective goggles, gloves and respirators.

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

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PRODUCTS  
3&7

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

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

NCHRP 244 Report, Table 1

**COVERAGE RATE\***

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

SURFACE TYPE	SQ.FT/GAL
Bridge Decks/Ramps	150-250
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.

**CLEAN UP**

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

**FIRST AID**

*Ingestion:* Do not induce vomiting. GET MEDICAL HELP. *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. 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. CONDITIONS OF SALE/ LIMITED WARRANTY**

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

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Information Handling Services  
 PO Box 1213  
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 Information Marketing Services  
 13271 Northend  
 Oak Park, MI 48237

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