



TK PRODUCTS

Division of Sierra Corporation
ISO 9001:2000 Certified

TK-590 TRI-SILANE

Meets Federal EPA's VOC Requirements

Technical Data

1. PRODUCT NAME:

TK-590 TRI-SILANE

2. MANUFACTURER

TK PRODUCTS
DIVISION OF SIERRA CORPORATION
11400 West 47th Street
Minnetonka, MN 55343
952-938-7223
952-938-8084 (FAX)
E-mail: tksales@tkproduct.com
Website: <http://www.tkproduct.com>

3. PRODUCT DESCRIPTION:

TK-590 TRI-SILANE is a one-component, deep penetrating, invisible, non-darkening treatment for concrete. TK-590 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 TRI-SILANE is designed to surpass the performance criteria of NCHRP #244 for protection of concrete against the intrusion of chlorides. TK-590 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 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 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, above ground, vertical or horizontal. It protects the surface against damaging effects of water intrusion, acid rain, deicing chemicals, freeze/thaw exposure, airborne dirt, smog, industrial fumes, and most other atmospheric chemicals.

APPLICATIONS INCLUDE:

- A. Parking Structures
- B. Bridge Decks
- C. Commercial Buildings & Warehouses
- D. Precast Concrete
- E. Burnish Block
- F. Split Face Block
- G. Stucco
- H. Poured Concrete Walls

TK-590 TRI-SILANE is not suitable for use on gypsum.

TYPICAL PROPERTIES:

TK-590 TRI-SILANE has been carefully designed for use on above grade exterior surfaces and is characterized by the following properties:

- Excellent penetration
- High alkali resistance
- Low volatility
- Use only on dry surfaces
- Dries tack free
- Provides early water repellency
- Exhibits droplet effect
- Suitable for alkaline & neutral substrates
- Will not etch glass

LIMITATIONS:

TK-590 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.

4. TECHNICAL DATA:

- Composition: an alkylalkoxy-silane with an anhydrous alcohol carrier.
- % Actives: 40%*
- Weight per gallon: 6.9 lbs.
- Flash Point: 53° F
- Viscosity: 16-18 Sec. Z2

*Also available in 20% formulation. (The 20% actives version of TK-590 exceeds the maximum VOC limit in the sealers category. There will be an EPA exceedance fee charged at the time of purchase.)

- ASTM 672-76 freeze/thaw cycle
- ASTM 642-75 Water absorption test
- AASHTO T260-78 Chloride penetration

-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 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).

5. APPLICATION PROCEDURES AND INSTRUCTIONS

SURFACE PREPARATIONS:

All surfaces to be treated must be clean and structurally sound. Thoroughly clean surfaces to remove all grease, oil, form oils, or 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 TRI-SILANE.

Best results are obtained by applying TK-590 TRI-SILANE on dry substrates. A test patch should always be applied to determine proper results and coverage rates.

Before using this product, read the Material Safety Data Sheet for complete safety information. Material Safety Data Sheets are available from TK Distributors, the TK Office, or the TK Website.

APPLICATION:

TK-590 TRI-SILANE should be used directly from the container. Do not dilute. Application can be made with a roller, brush, or an industrial sprayer. When applying TK-590 TRI-SILANE, the surface must stay moist briefly to assure complete coverage and saturation. Any puddles should be broomed out.

TK-590 TRI-SILANE
Concrete Sealer and Water Repellent

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TK-590 TRI-SILANE
Concrete Sealer and Water Repellent

Series II Test	Minimum Requirement	TK-590 Tri-Silane	Competitive Silane
% Reduction in Water Absorption	75	87	83
% Reduction in Cl Intrusion	75	93	84
Depth of Penetration (Inches)	n/a	.08	.12
% Water Vapor Transmission	100	100.22	100.16

NCHRP 244 Report, Table 1

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.

COVERAGE RATE*

Recommended coverage rate for TK-590 TRI-SILANE is 125 square feet per gallon on most concrete substrates. Very porous surfaces may require two coats of TK-590 TRI-SILANE.

SURFACE TYPE	SQ.FT/GAL
Bridge Decks/Ramps	150-250
Smooth Concrete	150-250
Exposed Aggregate	100-200
Concrete Block	40-100

*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 TK-00 solvent or xylene.

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.

PRECAUTIONS

TK-590 TRI-SILANE will react with water vapor. To insure maximum effectiveness, keep containers tightly sealed when not in use. Do not use or store near heat or open flame. All safety precautions must be adhered to at all times. Only apply in well ventilated areas, do not smoke in the area, and turn off all pilot lights. Wear protective goggles, gloves, and respirator.

MAINTENANCE

If wear patterns do occur, TK-590 TRI-SILANE can be reapplied to the affected area(s).

6. AVAILABILITY

TK-590 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

TK Products, division of the Sierra Corporation, warrants that its products conform to the label descriptions, are free from manufacturing defects, and are fit for the ordinary purposes for which such goods are used. Inasmuch as the use of TK Products' product by others and other factors affecting product performance are beyond TK Products' control, TK Products does not guarantee the results to be obtained. There are no warranties except as stated herein, either express or implied, including implied warranties of merchantability or fitness for a particular purpose. SHOULD ANY TK PRODUCTS' PRODUCT FAIL TO GIVE SATISFACTORY RESULTS, TK PRODUCTS WILL REPLACE THE PRODUCT, OR AT ITS OPTION, REFUND THE PURCHASE PRICE. THIS IS THE SOLE AND EXCLUSIVE REMEDY FOR ANY FAILURE OF TK PRODUCTS' PRODUCTS TO PERFORM AS WARRANTED AND SHALL ALSO CONSTITUTE LIQUIDATED DAMAGES IN CASE OF LOSS. UNDER NO CIRCUMSTANCES SHALL THE BUYER BE ENTITLED TO ANY OTHER REMEDY OR DAMAGES. REMEDIES FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE SPECIFICALLY EXCLUDED. TK Products does not authorize any person to assume for it any other liability in connection with the sale or use of its products unless specifically authorized by TK Products in writing.

8. TECHNICAL SERVICES

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

9. FILING SYSTEMS

Information Handling Services
 PO Box 1213
 Englewood, CO 80150
 Information Marketing Services
 13271 Northend
 Oak Park, MI 48237

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12/08