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ecologic[®]

Brand
Mortar & Plaster
For Historic Restoration
and Green Building

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Ecologic™ Silane

Product Description

Isobutyltriethoxysilane for use as a clear, penetrating, breathable VOC-compliant surface treatment on concrete and other mineral building materials. This material can be used pure or diluted in solvent. Solvents can increase the VOC content; therefore, testing should be conducted to confirm that finished formulation remains VOC compliant in the country and state of intended use.

When applied to concrete or other mineral building surfaces, this material penetrates the substrate and chemically bonds with silica to form a permanent attachment of the water repellent molecule. Creates a deep hydrophobic layer that prevents water and waterborne contaminants from entering the substrate and causing premature deterioration. By combining low surface tension with a tailored rate of reaction, **Ecologic™ Silane** can move through the moisture boundary layer that lines the pore structure of the substrate. This permits the development of uniform gradient permeation — a consistent level of protection throughout the entire depth of penetration — allowing for longer treatment life, especially on wearing surfaces.

Appropriate Applications

For use on cast-in-place, precast, GFRC and high-strength concrete, to protect the reinforcing steel from corrosion due to the effects of water, deicing salts and other waterborne contaminants.

Alleviates deterioration of concrete due to alkali-silica reactivity.

For use on bridge decks where fast drying is needed to minimize lane closures.

For treating heavy traffic wearing surfaces or areas that receive high salt concentrations (piers, coastal buildings), to provide a high-performance, long-lasting chloride screen.

Benefits

Ecologic™ Silane is a solvent-free, >99% active isobutyltrialkoxysilane. Ecologic™ Silane penetrates deeper than traditional silane and siloxane solvent- or water-carried systems. This deeper penetration gives a long-lasting, resistance against water and chloride intrusion. **Ecologic™ Silane's** breathable system greatly reduces the amount of water that enters a substrate, thus promoting a “drying out” of the substrate. Reduces the deteriorating effects of water, such as alkali silica reactivity.

By incorporating Ecologic™ Silane into your integrated design, you can earn vital Leadership in Energy & Environmental Design (LEED) credits for both new and existing construction projects.

The main benefits of the product are:

- Environmental Design (LEED) credits for both new and existing construction projects.
- The main benefits of the product are:
- Can be diluted in common solvents
- Excellent resistance to chloride ion ingress
- 100% Moisture vapor transmission
- Mitigation of AAR & ASR deterioration
- Deep penetration into substrate
- No change in surface appearance
- High resistance to alkali attack
- Long service life
- Excellent performance on wearing surfaces
- Quick Dry time after application (1 Hour)
- Keeps substrates cleaner

Limitations

Not intended for below-grade waterproofing. Formulations using this material should not be applied if the surface temperature is below 20°F (-7°C) or above 100°F (40°C), if rain is expected within 2 hours following application, or if high winds or other conditions prevent proper application. If rain has preceded the application, the surface should be allowed to dry for at least 24 hours.

Technical Data

Ecologic™ Silane is a liquid Isobutyltriethoxysilane

Color water	White
Active Content	> 99%
Solvent	None
Flash Point	145.4°F
Density	7.3 lb/gal
VOC	(Pure) 390 g/l

Test Data

<p>Alberta DOT Penetrating Sealer Type 1b</p> <p>Initial water repellency 80.7%</p> <p>First abrasion cycle 89.3%</p> <p>Second abrasion cycle 91.1%</p> <p>Third abrasion cycle 86.3%</p> <p>Alberta DOT Penetrating Sealer Type 1c (0.35 w/c ratio)</p> <p>Water repellency after heavy abrasion 87.3%</p> <p>NCHRP #244 Series II</p> <p>Reduction in water absorption</p> <p>@125 ft²/gal 88%</p> <p>@250 ft²/gal 86%</p> <p>Reduction in chloride ion ingress</p> <p>@125 ft²/gal 88%</p> <p>@250 ft²/gal 87%</p> <p>NCHRP #244 series IV reduction in chloride ion</p> <p>@125 ft²/gal 99%</p> <p>@250 ft²/gal 99%</p>

Equivalent Thickness of Concrete Needed to Give Same Chloride Ion Protection as Treatments (150 days of salt exposure)

<u>Treatment</u>	<u>Thickness of Concrete</u>
Ecologic™ Silane	3.5 inches
Methyl Siloxane	0.25 inch
iso-Octyl Siloxane	1.2 inches
iso-Octyl Silane/Siloxane	1.2 inches

ASTM G85, G53 “Accelerated Weathering”

3500 hours	No change
Penetration, OHD L-34	No Change
Concrete 0.5 w/c ratio	3/8 to 5/8 inch
Concrete 0.42 w/c ratio	3/8 to 1/2 inch

Precautions: Ecologic™ Silane is a combustible liquid and should be kept away from heat, sparks, open flame, and other sources of ignition.

Ecologic™ Silane containers should be kept closed when not in use and should be stored at temperatures between 0°F (-18°C) and 120°F (50°C), away from rain and standing water. When working in an enclosed area, an air respirator should be used. Please refer to the material safety data sheet for more detailed information.