

DRY-TREAT BHN



High Performance Silane Water Repellent

Product Data and Test Information

PRODUCT NAME

DRY-TREAT BHN
(DRY-TREAT 100N)

100% active silane treatment.

MANUFACTURING

Dry-Treat products are manufactured and processed in Singapore, Germany and USA according to ISO 9002 requirements.

PRODUCT DESCRIPTION

A clear, penetrating, breathable VOC compliant surface treatment for use on concrete, brick, masonry and natural stones. The unique 100% silane treatment (no solvent) penetrates into the substrate and chemically bonds with silica to form a permanent attachment of the water-repellent molecule. Creates a deep hydrophobic layer, which prevents the ingress of water and water borne contaminants from entering the substrate and causing premature deterioration. Besides being an excellent barrier against water and chloride salt ions, DRY-TREAT BHN can reduce in-place corrosion of reinforced concrete.

By combining a low surface tension with a tailored rate of reaction, the DRY-TREAT BHN is able to move through the moisture boundary layer which lines the pore structure of the substrate. This permits the development of uniform gradient permeation or a consistent level of protection throughout the entire depth of penetration. This allows for a longer life of the treatment especially on wearing surfaces.

APPROPRIATE APPLICATIONS

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

To reduce active corrosion in reinforced concrete structures and alleviate deterioration of concrete due to alkali-silica reactivity and delayed ettringite formation.

Brick and masonry can be treated to prevent the ingress of wind-driven rain while maintaining surface appearance and breathability. For treating heavy traffic wear surfaces or areas which receive high salt concentrations (port structures, bridges and coastal buildings) to provide a high performance, long lasting chloride screen.

ADVANTAGES

DRY-TREAT BHN is a solvent-free 100% active alkyltrialkoxo silane which penetrates deeper than traditional silane and siloxane, solvent and water carried systems. This deeper penetration gives a long lasting, high performance durable water and chloride screen. By greatly reducing water entering the substrate and being a breathable system the DRY-TREAT BHN promotes a “drying out” of the substrate. This increases the resistivity of the substrate and reduces the corrosion current in steel reinforced concrete. All deteriorative conditions where water plays a role in causing corrosion are substantially reduced.

The main benefits of the product are:

- Deep penetration
- Excellent resistance to water intrusion
- 100% moisture vapor transmission
- Reduced in-place corrosion
- Excellent chloride ion screening
- No discoloring or darkening of the substrate
- High resistance to alkali attack
- Non-film forming
- Low VOC
- High flash point
- Reduced staining and microbiological growth
- UV resistant

LIMITATIONS

Not intended for below-grade waterproofing. Should not be applied if, the surface temperature is below 5°C or above 45°C, if rain is expected within two 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 at least 24 hours.

TECHNICAL DATA

DRY-TREAT BHN is a liquid alkyltrialkoxo silane.

Color	water white
Active Substance	isobutyltriethoxysilane
Active Content	100%
Solvent	none
Flash point	63°C
Density	0.88 g/cm ³
Refractive Index	1.400

TEST DATA

Alberta DOT Penetrating Sealer Type 1b

Initial Water Repellence	91.4%
First Abrasion Cycle	92.0%
Second Abrasion Cycle	91.1%
Third Abrasion Cycle	86.3%
Fourth Abrasion Cycle	79.3%

Alberta DOT Penetrating Sealer Type 1c

Water Repellency (0.35 w/c ratio)	
After Heavy Abrasion	87.3%

NCHRP #244 Series II

Reduction in Water Absorption	88%
Reduction in Chloride Ion Ingress	88%

NCHRP #244 Series IV

Reduction in Chloride Ion Ingress	99%
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Equivalent Additional Concrete Cover*

<u>Treatment</u>	<u>Additional cover</u>
DRY-TREAT BHN	88 mm
Methyl Siloxane	6 mm
Iso-Octyl Siloxane	30 mm
Iso-Octyl silane/siloxane	30 mm

* 150 days chloride ponding

Corrosion Reduction of Surface Treatments on Reinforced Concrete after 12 months of Salt Ponding

<u>Treatment</u>	<u>Change in Corrosion Current</u>
Control	+28%
DRY-TREAT 100N*	-37%
Siloxane/Acrylic	-9%
Polymer Overlay	+22%
Urethane	-10%
Membrane	+6%

***Reduced corrosion current 65% compared to control**

Penetration

Concrete > 0.45 w/c ratio	3 – 6 mm
Concrete < 0.45 w/c ratio	2 – 4 mm

Crack sealing

UK DOT Highways BA 33/90 up to 0.3mm

Conforming Standards

UK DOT Highways BD 43/90, Germany DOT ZTVSIB 90
Alberta DOT BT001 Type 1c,

INSTALLATION

Concrete must be allowed to cure a minimum of 7 days. All repointing must be completed and allowed to cure at

least 3 days. Concrete repair and replacement must be completed prior to application of DRY-TREAT BHN. Patching materials, caulking, sealing materials, traffic paint must be fully cured before applying DRY-TREAT BHN. All surfaces must be cleaned to remove all traces of dirt, dust, efflorescence, mold, salt, grease, oil, asphalt, laitance, curing compounds, paint, coatings and other foreign materials. Acceptable surface cleaning methods include shotblasting, sandblasting, waterblasting, and chemical cleaners. Check with your DRY-TREAT representative to verify that surface preparation is adequate.

DRY-TREAT BHN should be applied in two coats using low-pressure (15-25 psi) pumping equipment with a wet type spray nozzle. Do not alter or dilute the material. Do not apply to a wet substrate, although a damp surface may be treated. A test patch should be applied to the substrate by a DRY-TREAT representative to verify coverage rate and application conditions.

On vertical surfaces apply the DRY-TREAT BHN in a flooding application, from the bottom up so the material runs down 150mm below the spray pattern. Coverage rates on horizontal and vertical concrete surfaces are between 0.60 -1.00 liter / m² depending on the porosity of the substrate. Your DRY-TREAT representative can give exact coverage rates for your particular project. Please refer to the DRY-TREAT application specification for more details.

Precautions: DRY-TREAT BHN is a combustible liquid and should be kept away from heat, sparks, open flame or other sources of ignition. The DRY-TREAT BHN containers should be kept closed when not in use and should be stored at temperatures between -10°C and 45°C and away from rain and standing water. When working in an enclosed area, an air respirator should be used. Please refer to DRY-TREAT Material Safety Data Sheet for more detailed information.

AVAILABILITY

DRY-TREAT BHN is available in 20 and 205-liter drum packaging to approved contractors. It is ready for use as supplied and requires no further thinning or mixing. Contact DRY-TREAT representative in your area for specific cost information.

TECHNICAL SERVICE

Technical service engineers and chemists are available to answer questions on product performance, application methods and chemical composition.

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