THE DRY-TREAT HANDBOOK

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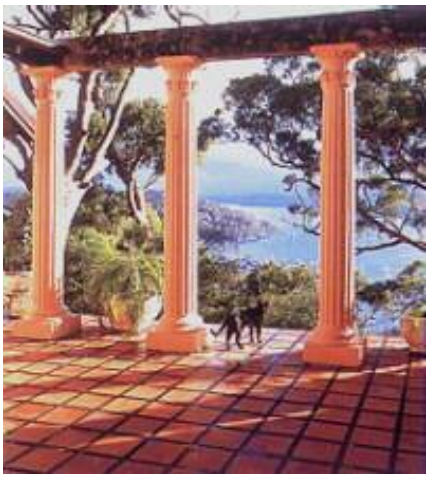
INTRODUCTION

WELCOME TO DRY-TREAT

Dry-Treat make a range of high performance sealers that give long-lasting and invisible water, salt and stain protection for all mineral porous building materials. Sealing with a Dry-Treat product reduces the cost of maintenance and keeps surfaces looking good for longer.



Dry-Treat sealers are suitable for a wide variety of applications, including: engineering structures – particularly marine structures such as bridges and wharves, building facades, floors, walls, swimming pool surrounds, patios, garages, kitchens and entertaining areas. Dry-Treat sealers give excellent protection for engineering concrete, terracotta tile, cast stone, paving, sandstone, limestone, brick, slate, marble, granite, porcelain, terrazzo, vitreous tile and grout.

Our products are based on the alkyl silane molecule, a material used extensively worldwide, including the concrete on the Sydney Opera House, where DRY-TREAT 100N was used. Established in 1991, the company's products are now being used by thousands of satisfied customers as well as being exported around the globe. Dry-Treat products are also used to permanently eliminate unsightly efflorescence salts, control corrosion of reinforcing steel, reduce acid rain attack, mitigate freeze-thaw damage, control alkali silicate reactions, minimize mildew and algae, control graffiti and permanently colour paving.

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SYDNEY OPERA HOUSE

Sydney Opera House was completed in 1973 and has a required service life of over two hundred years. In 1993 a major up-grade and maintenance program was conducted by the Public Works Department. It included the use of a protective coating on much of the exposed reinforced concrete elements. That protective coating was DRY-TREAT 100N, a pure alkyl alkoxy silane.

The Sydney Opera House is located on the shores of Port Jackson, adjacent to Sydney's central business district. The elements of the building are therefore subject to both an aggressive urban and marine environment. Measures to protect the ribs of the sail-like exposed pre-cast concrete shells were required because there had been a slow build-up of salt contaminants especially in the exposed concrete on the most northerly shell. In some areas chloride ions had penetrated up to 10 mm from the surface.

A means to reduce the future rate of contamination and the risk of corrosion of the reinforcement also had to be found. It was important that the method used did not damage the glass forming the main view area of the Opera House. Ove Arups, the original engineering designers of the Opera House, decided to use a penetrating sealer that would act as a long lasting barrier to water and water borne salts and be vapour permeable. The concrete was pressure washed to remove the loose surface matter and allowed to dry. Two coats of DRY-TREAT 100N were then applied to the exposed concrete.

The final result was on-going protection that did not alter the appearance of the treated concrete in any way. Also, any over-spray of DRY-TREAT 100N simply washed off and did not affect the massive glass viewing windows.

THE CURSE OF EFFLORESCENCE

Efflorescence is a problem affecting all cement based building materials. This includes paving, brickwork, blockwork, concrete, render, grout and tiles.

In every kilogram of cement-based material there are also many grams of water-soluble salts. Most commonly, efflorescence begins when unused lime compounds from the cement are dissolved in mixing water, ground water or rain. Evaporation of the water brings these lime compounds to the surface where they can react with carbon dioxide in air to form insoluble crystalline calcium carbonate.

This is the unsightly white powdery material we often see on paving, that detracts from what should otherwise be an attractive and clean surface. In extreme cases the efflorescence can obscure the surface and the crystallisation can cause erosion and pitting.

Eventually, the calcium carbonate may react with more carbon dioxide to form calcium bicarbonate - a material that is water-soluble. The surface may become clean after a number of months or years in the outdoors. Understandably, not everyone wants to wait that long. And since first impressions are always lasting, it's worth preventing efflorescence problems from the start.

Just washing the efflorescence off the surface usually starts an almost endless cycle of more efflorescence rising to the surface. After only a few days the surface is as powdery as before. The answer is to seal the surface with a high performance sealer as soon practicable after the building material is installed. The sealer must be deeply penetrating (5 to 10-mm), able to withstand the highly alkaline environment found in cement based-materials and be completely breathable so moisture cannot be trapped below the surface. Once the surface is sealed a deep water-repelling layer is formed. This layer will prevent water and dissolved lime compounds from reaching the surface where efflorescence could occur. At the same time the sealer stops further water soaking into the surface and so breaks the cycle of efflorescence. The unused lime compounds are left harmlessly immobile in the core of the building material with little contact with carbon dioxide. Since the sealer can breathe, sub-surface moisture can escape as water vapour rather than in a liquid form.

If efflorescence has already occurred the surface can be permanently restored. Simply seal the surface and once the sealer has cured (about 24 hours after its application) the efflorescence can be scrubbed off with the help of a suitable mild acid (always test the surface first), never to been seen again. Dry-Treat sealers can perform this task without changing the look, texture or frictional properties of the surface. The sealers are warranted for more than 15 years. So, now there is a relatively easy answer to the curse of efflorescence – sealing with a Dry-Treat product!

DRY-TREAT (AUSTRALIA) PTY LTD

COMPANY PROFILE

About our Company

Dry-Treat (Australia) Pty Ltd was established in 1991 to meet customer demand in the area of restoration and preservation of mineral porous building materials. Dry-Treat is committed to providing high quality products and services for the building and construction industries. We offer a range of innovative sealers for concrete, brickwork, stonework and tiles for commercial and domestic use.

What Sets Us Apart

Our understanding of engineering and chemistry sets us apart from our competitors. We employ fully qualified engineers, who understand the process of protecting building materials. The company's policy of building customer satisfaction through service and quality products has ensured steady growth and market prominence. Our commitment to customer service is combined with an innovative approach to problem solving and product development. Future plans include the further expansion of our product range and development of key markets overseas.

Our Track Record

Since its commencement Dry-Treat has undertaken hundreds of supply projects including historical and modern buildings and structures across Australia, Asia, the Pacific Islands, USA and Europe. Our customers include government authorities, major retail chains, major building and engineering contractors and many private companies and individuals.

Manufacturing & Distribution

The company's headquarters is in Sydney. Products are made and packaged in Rydalmere and dispatched from one of our warehouse facilities in Wetherill Park Sydney, Eagle Farm Brisbane, Laverton Melbourne, Long Beach USA, Middlesex England, Miehlen Germany, Kowloon Hong Kong and Singapore. A focused expansion programme over recent years has seen Representatives and Agents appointed throughout Australia, USA, United Kingdom, Hong Kong, Singapore, Austria & Germany, New Zealand, PNG, Fiji and Ghana.

Our People

Our key people include:
Managing Director & Export Manager- Stuart Anderson BE (Civil) MIE (Aust.) CP Eng.,
Production - Justin Duong BE (Chem.) P Eng.
Factory – Mike Priory
Financial – Stephanie Cook
Administration Support - Mary Summerfield

Australia

National Sales & Marketing Manager – John Cordwell BA
Customer Service – Matthew Davis
Queensland Sales – Bill Dickinson
Victoria Sales – Rick de Jonge
WA Sales – Russell Telfer
SA Sales – Matthew Bond

Austria, Germany & Italy– Hannes Schlossbauer

England & Wales - Chris Senogles
Ghana – Eugene Botchey
Hong Kong - Director - James Salmon BE (Civil) MIE (Aust.) CP Eng.
New Zealand - Richard Davis
Singapore - Angie Hoo BE (Civil)
United States of America – California, Terry Prelipp
Florida, Bob Howard

To contact us

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PRODUCT RANGE II (DRY-TREAT 100N, DRY-TREAT Crème)

IMPREGNATING SEALERS TO PROTECT AGAINST WATER AND WATER-BORNE SALTS

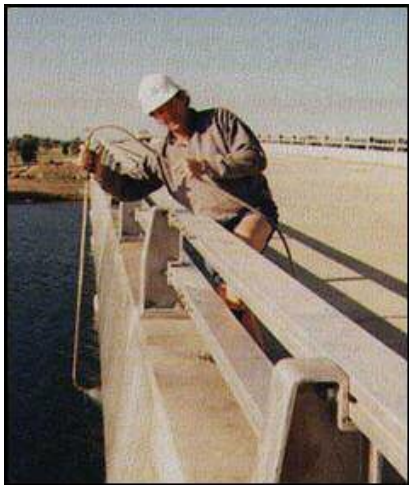
DRY-TREAT 100N

PRODUCT INFORMATION

Uses:
Dry-Treat 100N is a penetrating, invisible and breathable sealer that protects engineering concrete from damage caused by water and water-borne chloride ion salts. Exposed surfaces become easier to clean, maintain and keep looking good for longer. Dry-Treat 100N provides lasting protection for engineering concrete.

Typical applications:
Dry-Treat 100N is suitable for a wide variety of applications, including marine infrastructure (such as bridges, wharfs and jetties), building facades, car parks and swimming pool surrounds.

Benefits:
Dry-Treat 100N is:



1. able to repel water and water-borne chloride ion salts;
2. non film-forming;
3. able to work without changing the appearance of the surface - keeps the original look;
4. able to greatly reduce water uptake and minimise moss growth, freeze thaw spalling and efflorescence;
5. an excellent chloride ion salt screen by 98% – ideal for marine and pool areas; highly water vapour permeable – able to breathe so there is no build-up of subsurface moisture allowing it dry out;
6. deeply penetrating – protecting against weathering and wearing;
7. solvent free – 100% active ingredient;
8. very alkali resistant – won't breakdown in contact with cement based materials; and
9. able to seal hairline cracks up to 0.3 mm (0.012 in.) and does not flake or peel.

Warranty:
A 30-YEAR PERFORMANCE WARRANTY is offered when applied by an accredited applicator following our written instructions and tested by us.

Application rates:
Two coats, each coat @ 0.3 litre per sq.m. per coat i.e. total of 1 litre per 1.66 sq.m. (65 sq.ft. per US gallon)

How to use:
1. ALWAYS TEST PRODUCT ON A SMALL AREA FIRST and allow a 24-hour cure time to determine the ease of application and desired results.
2. Ensure surfaces to be treated are dry, clean and free of residues.
3. Product is to be applied without thinning.
4. Generously saturate the surface with product using a low-pressure hand spray, a clean brush, or similar. Surface should have a mirror-like "wet" look for 3-5 seconds. Avoid contact with surrounding areas.

5. After 12 hours, repeat Step 4. Total application rate is approximately 1 litre per 1.66 square metres (65 sq.ft. per US gallon).
6. Allow 10 minutes for product to penetrate surface then polish surface with a clean white dry cloth to remove excess product.
7. Clean equipment with organic solvent.

Note: Sealer will not prevent surface etching or wear and may lighten or darken some surfaces.

Precautions:

1. Do not take internally.
2. Apply when surface temperature is between 5 to 35 C° (40 to 95 F°).
3. Avoid moisture contact with the surface for 6 hours after application.
4. Protect surrounding areas from over spray.
5. Keep away from drains, plants, water and soil.
6. Use only in well-ventilated areas.
7. Use a positive pressure respirator if ventilation is inadequate.
8. Wear suitable solvent-resistant gloves, protective clothing, safety goggles and an organic vapour respirator during application.
9. Avoid applying in windy conditions.
10. Wash hands thoroughly.

Active content:
Greater than 99% isobutyl triethoxy silane

Pack size:
20 and 200 litre (i.e. 5.3 US gallons & 53 US gallons) steel drums

Reference sites:
Changi Wharf Department of Defence Singapore 28,000 sq.m.
Queens Wharf Fiji 10,000 sq.m.
Sydney Opera House 3,000 sq.m.
Anzac bridge 5,000 sq.m.

NSW
<u>Commercial</u>
Qantas International Terminal, NSW
ANZAC Bridge, Glebe Island, NSW
ANZ Bank, Sydney, NSW
Opera House, Sydney, NSW
St Mary's Sewerage Treatment works, NSW
Bronte Pavilion, Bronte, NSW
Campbelltown Bridge, Campbelltown, NSW
Water Board Sewage Tank, Terry Hills, NSW
PWD Wharf, Eden, NSW
Amphibious Landing Wharf Woolwich, NSW
Dpt Housing, Waterloo, NSW
Water Board, Penshurst Reservoir, NSW
Readers Digest Building, Sydney, NSW
Bronte Surf Club, Bronte, NSW
Barneys Point Bridge, Tweed Heads, NSW
Darling Harbour Convention Centre, Sydney, NSW
King Street Car Park, Newcastle, NSW
Newcastle Foreshore, Newcastle, NSW
RTA North Coast Bridges, Grafton, NSW
City West Pyrmont Wharfs, NSW
Franklins Distribution Centre, Ingleburn, NSW
Bulk Liquids Berth, Port Botany, NSW

Kooragang Island Bridge, Kooragang, NSW
Campbell's Cove Wharf, Dawes Point, NSW
RTA Swansea Bridge, NSW
RTA Woronora Bridge, NSW
Wyong Council, The Entrance Bridge, NSW
Wyong Council, Box Culverts, NSW
RTA Taree Bridges, NSW
HMAS Waterhen, NSW
PWD, Ulladulla Wharf, NSW
Macquarie University various buildings, NSW
Nowra Bridge, Shoalhaven Council, NSW
AAP Centre, Sydney, NSW
St Huberts Island Bridge, Gosford City Council, NSW
Munmorah Power Station, Intake Canal Bridge, NSW
Vales Point Power Station, Bund Walls, NSW
North Sydney, Seating Area, Olympic Pool

Residence 53 Washington St, Toorak, NSW

VIC
Commercial
Commercial Vic Roads, Philip Island Bridge, VIC
Commercial Melbourne Port - various locations, VIC
Commercial Patterson River Bridge, VIC
Commercial Nelson River Bridge, VIC
Residence 322 Albert St, East Melbourne, Vic 3002

SA
Commercial
Flinders Power Station, Port Augusta, SA
Northern Power Station, Civil Repairs, SA
Torrens Island Power Station, SA
Torrens Island Access Bridge, SA

QLD
Commercial
4 Wharf, Outer Harbour, North Mackay, QLD 4740
Gold Coast, Kerkin Rd. Pimpama Flood Structure, Qld
QLD Rail, Coomera Bridge, Qld
Qld Rail, Gold Coast Rail Link Piles, Qld
Townsville Port Authority, Berths 1 & 2, Qld
QLD Rail, Boat Creek Bridge, Qld
QLD Rail Yeppoon Flats Bridges, Qld
QLD Rail, Coorparoo Creek Bridges, Qld
Optus Tower, Mackay, Qld
QLD Rail, Box Culverts, Qld
Cairns Port Authority, Berth 5 & 8, Qld
Cairns Port Authority, New Wharf Qld
QLD Rail, Ross River Bridges, Qld
Port of Brisbane Corporation, Fisherman's Wharf - Coal Terminal, QLD
Mackay Port Authority, various wharfs, QLD
Pasminco, Karumba Jetty, Qld
4 Wharf, Outer Harbour, North Mackay, QLD 4740

WA
Commercial

Westrail, Bunbury Railway Bridge, WA
Murdoch University, WA
CBH Wharf, Fremantle, WA
Hot Briquette Mill Port Headland BHP, WA
Westrail sleepers, Eastern Goldfields Line, WA

TAS
Public Works, various west coast bridges, TAS

NT
Alice Spring Prison, NT
Alice Springs Correctional centre

Cambodia
Sihanoukville Jetty, CAMBODIA

Fiji
Fiji Telecom Ganilau Office Block, FIJI
Queens Wharf, Ports Authority of Fiji, FIJI
Muaiwala Jetty, FIJI

Hong Kong
Siu Hong Station, KCR

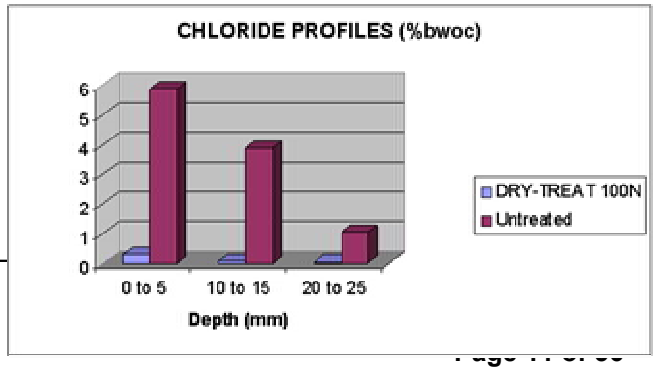
Indonesia
Power Station, ABB, Selatan

Papua New Guinea
Daru Wharf
Port Moresby Port
Madang Port
Lae Jetty, Morobe Province
Kawieng Fish Wharf, New Ireland

Singapore
Commercial
Extension of PSA International Terminal, SINGAPORE
Tuas Power Station Fuel Oil Unloading Jetty, SINGAPORE
Tanjong Rhu Suspension Bridge, SINGAPORE
Senoko Fish Markets (SSR supplied material), SINGAPORE
Cable Car Tower (SSR supplied material), SINGAPORE
Pulau Seraya Bridge (SSR supplied material), SINGAPORE
Shell Ular Bridge (SSR supplied material), SINGAPORE
Changi Naval Base SINGAPORE

Vanuatu
Port Villa

Test reports:
Absorption results - Mahaffey Associates
Cracking in concrete railway sleepers – CTI Consultants
Silane Application trials on pre-cast seating plats - CTI Consultants
Waterproofing measures for long-term durability of concrete – RTA/CTI



Contact with potable water – Water Board
The effectiveness of Dry-Treat 100N - Mahaffey Associates
Membrane effectiveness with silane treated concrete - CTI Consultants

Storage
Use product within 12 months of purchase. Keep container tightly sealed, in a cool well-ventilated place. Product is freeze-thaw stable.

Materials Safety Data Sheets are available on request

Typical Technical Specification Clauses for Dry-Treat 100N are available on request

DRY-TREAT CRÈME

PRODUCT INFORMATION

Uses:
Dry-Treat Crème is a penetrating, invisible and breathable sealer. Dry-Treat Crème is an octyl triethoxy silane in an aqueous, solvent-free cream that provides long lasting surface protection for exposed engineering concrete from damage caused by water and salts. Treated exposed surfaces become easier to maintain and keep looking good for longer. Dry-Treat Crème is applied in a single application.

Typical applications:
Dry-Treat Crème is suitable for a wide variety of applications, including marine infrastructure (such as wharfs and jetties) building facades, car parks and swimming pool surrounds.

Benefits:
Dry-Treat Crème is:

1. able to repel water and chloride ion (97% reduction);
2. non film-forming;
3. able to work without changing the appearance of the surface - keeps the original look;
4. a non-drip gel; ideal for use in windy conditions;
5. able to breathe so there is no build-up of subsurface moisture allowing it dry out; and
6. very alkali resistant – won't breakdown in contact with cement-based materials;
7. able to seal hairline cracks up to 0.3 mm (0.012 in.) and will not flake or peel.
8. water-based and easy to use.

Warranty:
A 30-YEAR PERFORMANCE WARRANTY is offered when Dry-Treat Crème is applied by an accredited applicator following our written instructions and tested by us.

Application rates:
Total application rate is approximately 1 litre per 2 to 4 square metres (80 to 160 sq.ft. per US gallon), depending on porosity and depth of impregnation required. (Typical depth of penetration into 50 MPa concrete is 3.6 mm).

How to use:

1. ALWAYS TEST PRODUCT ON A SMALL AREA FIRST and allow a 24-hour cure time to determine the ease of application and desired results.
2. Ensure surfaces to be treated are dry, clean and free of residues.
3. Product is to be applied without thinning.
4. Generously saturate the surface with product using a low-pressure airless spray unit, lambs wool roller, a clean brush, or similar. Surface should have a uniform "white" look. Avoid contact with surrounding areas.
5. Total application rate is approximately 1 litre per 2 to 4 square metres (80 to 160 sq.ft. per US gallon), or 200 to 400 microns per sq.m., depending on surface absorption and depth of penetration required.
6. Let the product dry for a minimum of 12 hours before using the surface.
7. Clean equipment with water.

Note: Sealer will not prevent surface etching or wear and may lighten or darken some surfaces.

Precautions:

1. Do not take internally.
2. Apply when surface temperature is between 5 to 35 C° (40 to 95 F°).
3. Avoid moisture contact with the surface for 6 hours after application.
4. Protect surrounding areas from over spray.

5. Keep away from drains, plants, water and soil.
6. Use only in well-ventilated areas.
7. Use a positive pressure respirator if ventilation is inadequate.
8. Wear suitable solvent-resistant gloves, protective clothing, safety goggles and an organic vapour respirator during application.
9. Avoid applying in windy conditions.
10. Wash hands thoroughly.

Active content:
An approximately 40 to 60% active content in water.

Pack size:
20 & 200 litre (i.e. 5.3 and 53 US gallon) plastic drums

Reference sites
MacKay Port Authority

Storage
Use product within 12 months of purchase. Keep container tightly sealed, in a cool well-ventilated place. Product is freeze-thaw stable.

Materials Safety Data Sheets are available on request

Typical Technical Specification Clauses for Dry-Treat Crème available on request

HOW OUR SEALERS WORK

To explain how our sealers work we need to mention a number of important factors;

Surface energy,
Chemical reaction,
Contact angle,
Salt resistance,
Depth of impregnation,
Alkali attack, and
Breathability.

Surface Energy

Dry-Treat's sealers work by the modification of the surface of the building material and by changing its absorption characteristics. This is achieved by a chemical reaction.

You may recall the school experiment when you placed a small needle on a quiet water surface to see how a film supported it. These same forces cause a raindrop to form into a sphere as it falls through the air and the water pulls towards itself. This film is caused by the surface energy that binds the water together. This intermolecular force is the result of hydrogen bonding and Van Der Waals forces.

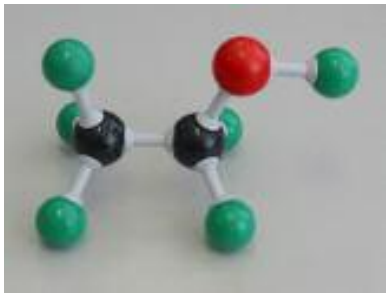
Capillary attraction is caused by this surface tension and by the relative value of adhesion between the liquid and solid and to the cohesion of the liquid. A liquid that wets the solid has a greater adhesion than cohesion. Metals for example have a high surface energy ranging from 0.5 to 5 joules sq.m. whilst water has a value of 0.07 j sq.m. and oil about 0.02 j sq.m. A material with a low surface energy will wet a material with a higher surface energy. Both oil and water will wet metal. Oil will spread on water but water won't spread on oil. Most of Dry-Treat's products work by modifying the natural surface energy of the porous building material by means of a chemical reaction which changes the surface energy, with the result that they repel water, salts and oils.

Chemical reaction

One of the main active components of our sealers is a molecule that is about 10A in size - good quality concrete pores size is typically 50 to 200Å. The molecule consists of silicon, carbon, hydrogen and oxygen atoms.

The molecule has two main parts with quite different properties. Part of the molecule is hydrophobic i.e. it repels water. This other part is hydrophilic i.e. it is attracted to water. When the sealer is sprayed onto the surface of porous building materials it immediately starts to react with moisture in the air and in the material. This causes the molecules in the sealer i.e. the hydrophilic part to react and break off to form alcohol - in this case ethanol. A new compound is formed called silanol that is able to react with the surface layers of the masonry. The structure of the majority of masonry essentially consists of silicon, oxygen and at boundary layers oxygen and hydrogen atoms. The silanol molecule is very reactive and is able to break the oxygen-hydrogen bond. It then attaches itself to the masonry lattice.

Unlike surface coatings that rely on only Van Der Waal forces of attraction or mechanical holding, this bond is very strong and of the same magnitude as the bonds holding the masonry together.



Contact angle
The attachment of the alkyl molecule to the silica lattice causes the contact angle between water and masonry to change. It no longer acts like a “hard sponge” but is able to repel liquids. This phenomenon can be expressed by the equation:

Capillary rise H= 2 x surface tension of liquid x contact angle of the concrete capillary radius x density of liquid x gravity.

Before the treatment the porous building material had a contact angle approaching zero. i.e. Cos (Øº) = 1, giving a positive value for H. After the treatment the sealer molecule on the silica lattice causes the contact angle to become about 110°.
i.e. Cos (110°) = –0.2, giving a negative value for H.

Salt Resistance
By definition salt ions must be in water to migrate into the building material through capillary suction. Due to the presence of the seal the building material now repels the water and it also repels the chloride ion.

So, the question you may ask is - how well does the sealer treatment work in protecting the building material against water and salt ingress? Hundreds of independent tests from around the world have verified these properties.

The 244 Report; This paper was produced by the US Transport Research Board who tested over 259 different materials for the protection of concrete. Silane was considered the best all-round material.

RTA CTI Report; This report showed that the water up-take was reduced by 98% and the chloride up-take by 97%. It interesting to compare this with some additives that only reduces the chloride uptake by only 30%.

Mahaffey Consultants also did some work on the effect of treatment of concrete and found it made concrete about 100 x more resistant to chloride ion ingress. Typically, using silica fume will make the concrete only 10 x more resistant.

CTI also found in another report that silane protection was equal to an extra 100 mm (4 in.) of concrete cover over the steel. This is useful for pre-casters who use our products to up-grade the durability characteristics of members incorrectly cast.

Depth of Impregnation
The uniform depth of penetration of the treatment can be measured from the surface after it has been soaked in a water-based dye.

Our sealers have a relatively slow moving reacting liquid, with a viscosity less than water. This means that even on slightly moist building materials it can still penetrate deep into the material. This is quite useful for marine structures. A deep depth of penetration

is vital to protect the treatment against the effects of weathering and ultraviolet radiation.

Just on this subject, it commonly observed that for a few months after treatment the masonry shows excellent water repellency beading. This effect later disappears. The effect is caused by excess product polymerizing on the surface to produce a greasy silicon type film. This film breaks down in the sunlight. The real work continues to be done below the surface.

So, we now have the pores in the first 4 to 10 mm of the material with a repellent molecule attached. The repellent action is caused by the net electron charge of the sealer, which like water is negative.

Alkali Attack
Also, unlike many other products the bond of this sealer can withstand strong alkali attack from calcium hydroxide. Alberta Transport & Utilities have developed a test to determine the ability of a treatment to withstand alkali attachment and is the basis for similar performance based specifications around the world. Their test involved soaking a treated sample of concrete in 0.1 molar solution of potassium hydroxide for 21 days then testing the sample for water up-take. To date, the best performing material has been our type of sealer.

Breathability
As mentioned before, the sealer has attached itself to the building material lattice where acts as a repellant. At the same time the sealer permits the passage of water vapour, so that the concrete can breathe. The reason for this phenomenon is hydrogen bonding. In liquid water, which means that the water molecules stick together and are subsequently resisted by the sealer. Water vapor travels alone and is able to by-pass the silane. This means that trapped moisture in the material can evaporate over time and dry out the substrata.

This can be demonstrated by filling this sand cement mortar cup with water. It has had the inside treated with sealer. It stops liquid water escaping but allows water vapor and air to travel through.

Electronic Power Point presentations:
“The Protection of Porous Building Materials” and “The Protection of Concrete with Silane” are available on request.

MATERIAL SAFETY DATA SHEET FOR DRY-TREAT 100N - APPENDIX I

DRY-TREAT 100N

MATERIAL SAFETY DATA SHEET

Date of Issue: August 2001

STATEMENT OF HAZARDOUS NATURE

Classified as Hazardous according to criteria of Worksafe Australia

COMPANY DETAILS

Company:	DRY TREAT (AUSTRALIA) PTY LTD
Address:	301, 220 Pacific Hwy, Crows Nest NSW 2065 P.O. Box 551, St Leonards NSW 1590 Tel: +61 2 9954 3211 Fax: +61 2 9954 3162
Emergency Telephone Number:	+61 2 9954 3211

IDENTIFICATION

Product Name:	DRY-TREAT 100N
Other Name:	Flammable liquid n.o.s
UN Number:	1993
Dangerous Goods Class:	3
Subsidiary Risk:	Not Relevant
Hazchem Code:	3Y
Packaging Group:	III
Poisons Schedule Number:	Not Scheduled
Use:	Water protection for dense masonry substrate

PHYSICAL AND CHEMICAL DESCRIPTION

Appearance:	Colourless to pale yellow liquid
Odour:	Alcoholic
Solvent:	None
Boiling Point	186^{o} C
Melting Point:	<-65^{o} C
Vapor Pressure (20^{O}C):	0.68 hPa
Specific Gravity (25^{O}C):	0.88
Flashpoint:	31 ^{O}C
Flammability Limits:	Not Available
Solubility in Water (20^{O}C):	Not miscible
Refractive Index:	1.400
Viscosity (20^{o}C)	0.95 mPa s

INGREDIENTS

Chemical Name:	Hazard Symbol	CAS Number	Proportion
Isobutyltriethoxysilane	F	[017-980-471]	>99%
Unidentified Impurities	_ _ _ _ _ _	_ _ _ _ _ _	<1%

HEALTH HAZARD INFORMATION

Acute:

Swallowed: Small amounts transferred to the mouth by fingers during use should not injure.

Eye: Vapours may irritate and cause pain and watering. Direct contact

Irritates slightly with redness and swelling.

Skin: A single short exposure (less than 24 hours) may irritate.

Repeated

Prolonged contact (24 to 48 hours) may irritate moderately.

Inhaled: Vapours may irritate respiratory passage. Inhalation of mist may

Injures the following organ(s): Liver.

Chronic: Repeated or prolonged exposure may injure the following organs:

Liver.

Others:

Carcinogens: None Known

Teratogens: None Known

Mutagents: None Known

Reproductive Toxins: Prolonged overexposure to Ethanol has caused human birth defects.

Sensitizers: None Known

FIRST AID MEASURES

Take off all contaminated clothing. If it is safe, remove to fresh air.

After inhalation
Provide fresh air. If feeling unwell seek medical advice.

After skin contact
Wash off with plenty of soap and water immediately. Seek medical advice if necessary.

After eye contact
Immediately rinse with water for 15 minutes and seek medical advice.

After ingestion
Seek medical attention immediately.