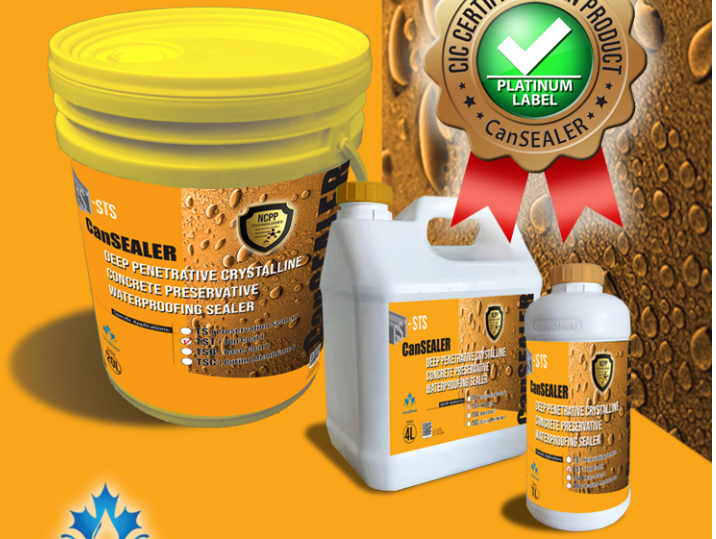
CS1-STS

CanSEALER

DEEP PENETRATIVE CRYSTALLINE CONCRETE PRESERVATIVE WATERPROOFING SEALER



CanaShield

CanSEALER

EPD®
THE GREEN YARDSTICK

CE 0120

Product Description

CanSEALER(CS1)-STS is a waterproofing nano-graded sealer, which forms concrete preservative waterproofing membrane using Canadian NCPP technologies. The composite concrete membrane is formed to waterproof and protect the concrete from harmful chemicals to extend the lifetime of concrete. The sealer provides strong resistance against both positive/ back pressure of water. It allows concrete breathing while prohitbiting water droplets ingression. The product obtained Water Regulations Approval Scheme (WRAS) approval and awarded Platinum Label in CIC Green Product Certification.

Features

- Inhibition of oils, greases and light acids ingress.
- No change to the features of the concrete, i.e. slip resistance and aesthetics properties.
- Harden the concrete by bonding with the particles during penetration.
- Prevention of chlorides and airborne pollutants deteriorations.
- Long-term pore blocking action creates hydrophobic barriers against water penetration.
- Applicable to withstand negative water pressure.
- Non-toxic, non-caustic and non-flammable.

Uses

Concrete or cementitious substrate surfaces
Bridge deck, Bridge and Highway median barrier, Parapet, Columns, Subways, Dams, Tunnels, Roads, Sidewalks, Airport runways, Wells, Ponds, Overflow-drains in swimming pools, Wine cellars, Basements, Foundations, Floor and slabs, Sport facilities, Tanks (sewage treatment plants and drinking water reservoir), Piers, Roofs, Cracks underneath tiles, Retaining walls and Concrete pipes inside beams, etc.

Properties

Description	Performance
Composition	Proprietary blend of waterglass in aqueous solution
Colour	Clear/ Colourless
Penetration depth	Up to 80mm (Grade 30/20D concrete)
Density	1.113g/ml
Smell	Odourless
Flammability	Non-flammable
Toxicity	None
Environmental risk	None
Number of coating	1-2 coat(s)
Coverage	3-4.5 m2/L for vertical concrete surface 3 m2/L for lateral concrete surface
Surface Drying Time	1-2 hours
Curing	7 days (Walkable after a few hours)
Shelf Life	36 months in sealed container (5 – 32°C)

Application

Surface preparation

- Wash/Clean the surface to remove oil, grease, debris, stain, paint, surface/damaged membrane, loose coating or material.
- Pre-wet the concrete surface and free from surface water before the coating is applied.

Coating method

- Apply CS1-STS evenly onto the proper prepared surface by pneumatic sprayer and the spray nozzle should be held approx. 450mm from the concrete surface and sprayed back and forth to ensure complete coverage.
- For vertical surface, CS1-STS should be applied from bottom-up to ensure even absorption of solution.
- For horizontal surface, CS1-STS should be applied onto the surface until a mirror wet look appears and maintain for at least 5 seconds. Avoid excessive application which may cause ponding.
- Apply the first coat to saturation without surface drips; the second coat should be applied on highly absorption area within 30 minutes after the first coat has dried up.
- An additional coat to enhance surface protection shall be applied on dried up surface upon 8-12 hours curing of the initial coat if required.
- The product is fully crystallized in 7 days; However, the surface is ready to walk after surface tack dry. Further plaster and concrete castings works (if any) can be applied after a few hours and skim coat/paint which requires preferably a completely dry base can be applied after one day.
- For application on underground structures – Repair all panel holes and gravel nests with a mortar/concrete and treat the surface with CS1-STS. The product is not effective on cast resumption which have to be waterproofed with other products (e.g. waterstop). It is possible to cover the treated surfaces with soil after 12 hours.

Supplementary Coatings

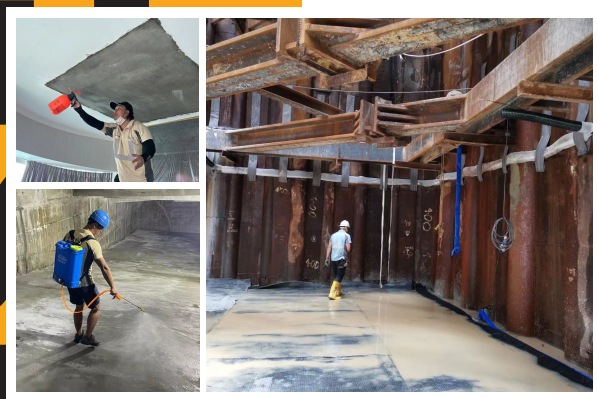
GreenWalls has developed specific types of nano-coatings, which apply to various phrases/surfaces of the concrete, cementitious and silica-based surfaces/substrates. The following types of Nano coatings are manufactured and formulated for specific applications:

CanSEALER

CS1-STS

CIC GREEN
PRODUCT CERTIFICATION
CICGPC-L-22400(P&C)

CanSEALER was awarded Platinum Label in CIC Green Product Certification in Year 2023



1 **CS1-STS(T)** - It serves as a top-coat integrated layer protecting the fair faces of concrete, cementitious and silica-based substrates providing self cleaning effect and heavy chemical resistance features that minimize chloride and carbonation attacks and future corresponding discolouring effects thus increasing the durability of the concrete structure and appearance.

2 **CS1-STS(P)** - It serves as a integrated primer (base coat) that strengthens the aging concrete by creating an integrated film on the surface of the existing concrete pores that will minimize the continue decrease of the Alkalinity of concrete substrate due to the ongoing aging process. CS1- STS is required to apply to the newly filmed pores of the concrete structures thus gel-liked filler be formed and filling the concrete pores that becomes hardened to increase the overall density of the structure.

3 **CS1-STS(C)** - It serves as a curing compound forming nano thin film membrane when applying to freshly poured concrete structures/elements few hours after pouring. General future cracks phenomenon caused by the expansion and contraction of the concrete pores due to the heat of hydration resulted from the curing and hardening process will be minimized thus shrinkage and water absorption rate will be reduced. The breathable film is formed as well.

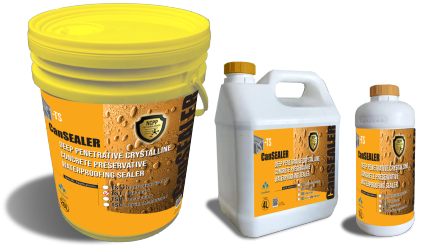
Testing & Certification

Description	Standards	Results
HOKLAS Laboratories		
Negative water pressure resistance with penetration depth	GB/T50082-2009	> 40 bar with penetration depth up to 80mm in Grade 30/20D
Chloride ion penetration resistance	ASTM C1205-05	Moderate
Chloride Diffusion Coefficient	ASTM C1556-03 & Taywood Method	2.25 x 10-11 m2/s
Water permeability	EN 1062-3	Class II (Medium)
Fungal Resistance	ASTM G21-96 (Reapproved 2002)	No fungal growth (Overall rating is 0)
Carbonation resistance	GB/T 50082-2009 with modifications	Suppression ratio: 100%
Formaldehyde Content	ASTM D5910-05 (2012)	Not detected
Phthalate Content	CPSC-CH-C1001-09.4	Not detected
Heavy Metal Content - Lead - Cadmium - Hexavalent Chromium - Mercury - Barium	 ISO 3856-1:1984 ISO 3856-4:1984 ISO 3856-5:1984 ISO 3856-7:1984 ISO 3856-3:1984	 Not detected Not detected Not detected Not detected Not detected
Ozone Depleting Substance Content	In-house Method	Not detected
2-Chloro-1,1-Difluoroethane (HCFC- 142) Content	US EPA Method 311	Not detected
Volatile Organic Compound (VOC) Content	U.S. Environment Protection Agency method 24	13.0 g/L
Toxicity (Concentration of Antimony, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury and Selenium)	Flame atomic absorption spectrophotometry with hydride generation system	Non-toxic [World Health Organization's (WHO) recommended limits for drinking water]
Overseas Laboratories		
Water Regulations Approval Scheme (WRAS)	WRAS Material Approval	Approved Materials
Suitability for Use in Contact with water	BS 6920-1:2014	Passed
Drinkability	D.M. 21.03.73	Passed
Fire Classification	EN 13501-1	Class A1
Compressive strength	BS EN 12190:1998	Increase up to 18% against control
Abrasion resistance	EN 13813	> 30% Improvement against control
Anti-surface absorption	BS 1881: Part 208:1996	0 mL/(m2.S)
Chemical resistant (Absorbing mean)	EN 2812-1	No visible defects
Chemical resistant (Astringent attack)	EN 13529	No visible defects
Freeze-thaw deicing / Thermal compatibility	EN 13687-1	≥ 1.5N/mm2
Freeze-thaw cycles resistance	UNI 7087/72	No visible damages after 300 cycles
Falling-weight test	EN ISO 6272-1	Classes III : >20Nm
Bond strength by pull-off	EN 1542	≥1.5 N/mm2
Environmentally-friendly	USA EPD Certified (No. S-P-00413)	Approved

Cautions

1. Do not apply below 5°C or above 40°C.
2. Store in a sheltered place under dry condition.
3. This product should be kept out of cement powder to prevent precocious reaction.
4. Accidental eye or skin contact with the product should be washed immediately with water. Seek medical attention if required.
5. Keep away from or protect glass and aluminium during application as they can be damaged by the product.
6. Safety precautions are recommended to be taken when handling the product or during application.
7. Application method and quantity may vary in different situations. Please seek authorized applicator for advice.

Packages



20 L / pail 4 L / jug 1 L / bottle

Manufacturer & Sole Agent
CanaShield Nano-Technologies Inc. (Canada)
CanaShield Nano-Technologies Ltd. (Hong Kong)
Web: canashield.com

Authorized Applicators
GreenWalls Bioengineering (HK) Ltd.
Web: greenwalls.com.hk
Email: ncpp@greenwalls.com.hk
Sanfield Industries Ltd. (Bridge & Highway)
Email: info@sanfieldhk.com