

GREENSEAL 100

CRYSTALLIZATION ADMIXTURE WATERPROOFING

DESCRIPTION

Greenseal 100 is a cementitious waterproofing admixture, which integrate to parts of concrete through crystallization process. When Greenseal 100's chemical agents react with water, a non-soluble crystalline will be generated throughout the capillary voids in the concrete. This crystalline is highly resistant to water, and it performs well even under extreme conditions such as pressures or aggressive chemicals. Cracks or voids up to a width of 0.3mm can be seal up anytime by using Greenseal 100, through crystallization process.

ADVANTAGE

- Greenseal 100 is non-toxic and is approved for potable water use.
- Highly resistant to water pressures and aggressive chemicals.
- GS 100 will seal Cracks or voids up to 0.3mm through crystallization process.
- Can be used as an additive agent to cement grout and cement sand.
- No special protective system is required.
- Greenseal 100 through crystallization process is capable of protecting rebar from corrosion by surrounding the rebar with non-soluble crystal.

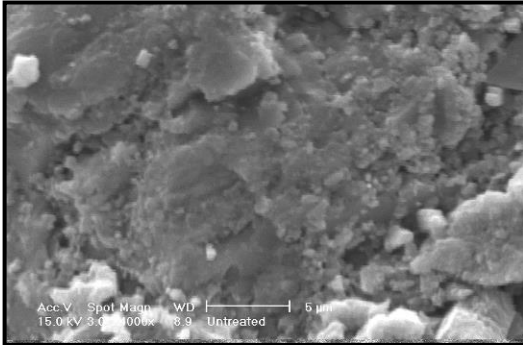
USES

<ul style="list-style-type: none"> • Ground or basement slab • Sewage tanks • Portable water storage structures • Cement sand screed/plaster • Underground retaining walls 	<ul style="list-style-type: none"> • Foundations & basements • Concrete expose to sea water • Roof slabs • Roof gardens 	<ul style="list-style-type: none"> • Tunnels • Concrete Piers • Reservoirs • Dams • Water Tanks • Swimming Pool
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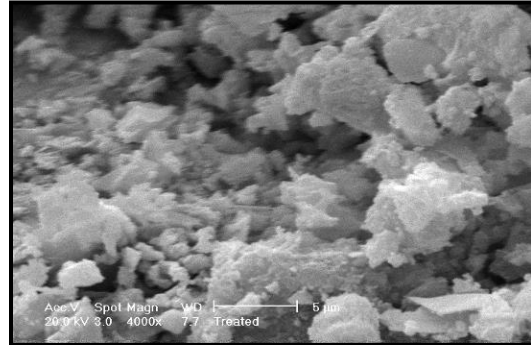
TECHNICAL DATA

Tests	Test Results	Standard
Water Permeability Test under 15 bars (Coefficient of permeability, k in m/sec)	7.2452E -12	IS 3085:1965 (Reaffirmed 1997)
Water Penetration Test – Untreated - Treated	50 mm 20 mm (60% improvement)	BS EN 12390-8 : 2019
Compressive Strength (7 days), N/mm ²	56.8	BS 1881 Part 125 & 116
Compressive Strength (28 days), N/mm ²	67.0	BS 1881 Part 125 & 116
Water content (%m/m)	0.88	ASTM C494
Non-volatile content (%m/m)	99.1	ASTM C494
Chloride content (%m/m)	0.004	BS 1881 : 124 : 1988
Total sulphur content (%m/m)	0.23	ISO 638
Air Content, %	3.4	GB18445-2001
Rust (corrosion) Effects to steel bars	No Rust	GB18445-2001
Toxicity Test	Non toxic	BS6920-1:2000 / WRAS

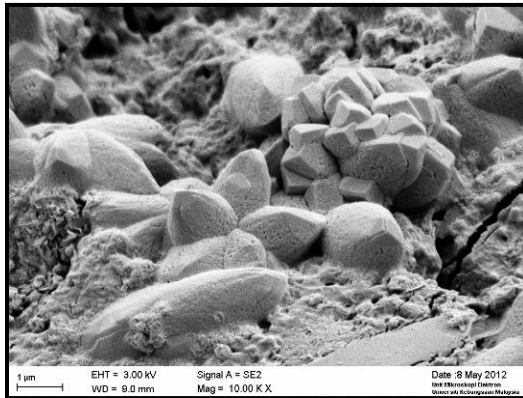
SEM IMAGES - Crystallization Report for GS100



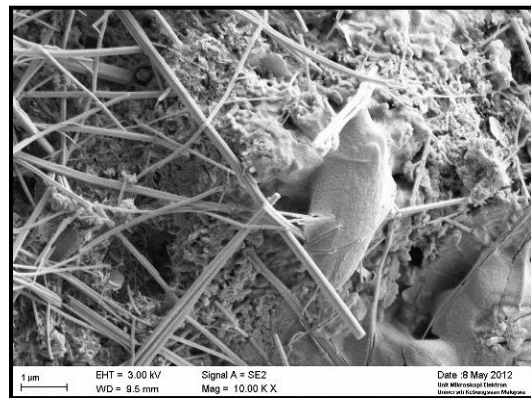
Untreated at 4000 X Magnifications



Treated 28 Days at 4000 X Magnifications



Untreated at 10,000 X Magnifications



Treated 28 Days at 10,000 X Magnifications

APPLICATION INSTRUCTIONS

MIXING

Dosage of Greenseal 100 in every batch of concrete shall go by percentage of total cement content in kg. A guideline is recommended below for the percentage dosage rates of Greenseal 100 admixture to the cementitious Ordinary Portland Cement (OPC) and Reactive Pozzolans (e.g. : reactive fly ash) content of the concrete.

An example of calculation:-

CONCRETE GRADE 30 (CEMENT CONTENT PER M³)	GREENSEAL 100 PER M³ (1% of CEMENT CONTENT)
300 Kg	3 kg
<p>Calculation for Dosage rate of Greenseal 100: (300 kg X 1% = 3 kg dose to be added into 1m³)</p> <p>Note: Consult with Greenseal Technical Representative for assistance in determining the appropriate dosage rate (1% - 1.5%).</p>	

BATCHING PROCEDURE

- Greenseal 100 can be added into concrete either in concrete batching plant or concrete mixing trucks. The dosage of Greenseal 100 shall follow specification. Please refer to our Greenseal Products representatives.
- Greenseal 100 admixture to be weigh accordingly. In concrete batching plant, it is recommended that the Greenseal 100 shall be added lastly into the concrete after the discharge of cement, sands and aggregates.
- The same method is applied when it is mixed into concrete mixing truck. Greenseal 100 can be added into the concrete mixing truck at site. When using Greenseal 100, avoid powder been blown away when pouring the powder into the mixing truck, Greenseal 100 can be mixed with water at 2 parts of powder to 1 part of water, to be poured into the mixing truck. After it is added into concrete mixing truck, allow 10-15 minutes for mixing.

CONSTRUCTION AND EXPANSION JOINTS

- The central line of all construction joints & expansion joints must be reinforced with Greenseal PVC WATERSTOPS prior to the pouring of concrete. Greenseal Products has a wide range of Greenseal PVC WATERSTOPS for construction and expansion joints.
- Please consult our Greenseal Products representative for further Greenseal PVC WATERSTOPS products information.

SETTING TIME

Retardation of setting time may occur when using Greenseal 100; therefore, a trial mix is encouraged to be carried out to determine the actual reduction of retarder from the design mix to achieve the required/ideal setting time.

The required/ideal setting time and slump can be easily achieved thru the trial mix by adjusting the dosage of superplastisizer and retarder from the original design mix.

Note:

- To avoid a longer setting time, dosage of Greenseal 100 should not be reduced, instead adjust the dosage of retarder.

COMPACTION

Compaction of concrete must be thorough. This could be determined by the conditions below:

- No air is trapped in the concrete voids
- Concrete has been filled to the intended level.
- No exposure to the reinforcement properties.

FINISHING

Finishing of the concrete can be done either by power trowelling or vigorous hand trowelling to the surface of the concrete. By doing this, the bleed water will eventually flow back to the concrete. Trowelling process will help build a nice flat surface of the concrete to a satisfactory finishing level.

CURING

- Curing to the concrete is essential to achieve the earliest possible time for the optimum growth of the crystallization of Greenseal 100. If possible, it is recommended that curing process takes place immediately once the final setting is achieved.
- Concrete shall be protected and cured under the formwork and remained in place for approximately fourteen (14) days before dismantling is allowed. Keep all the exposed surfaces moist.

BACKFILLING

Normal backfilling is allowed after the concrete is cured. However, in the event that back filling is done less than seven (7) days upon the initial setting, it is recommended that the backfilling material be kept moist to avoid the water from evaporating from the concrete.

POT LIFE (MIXED)

Greenseal 100 when mixed with water can last up to 30 minutes before it is added into mixing trucks.

PACKAGING AND APPEARANCE

- Greenseal 100 is packed in 25kg/Bag.
- Colour –cement grey powder.

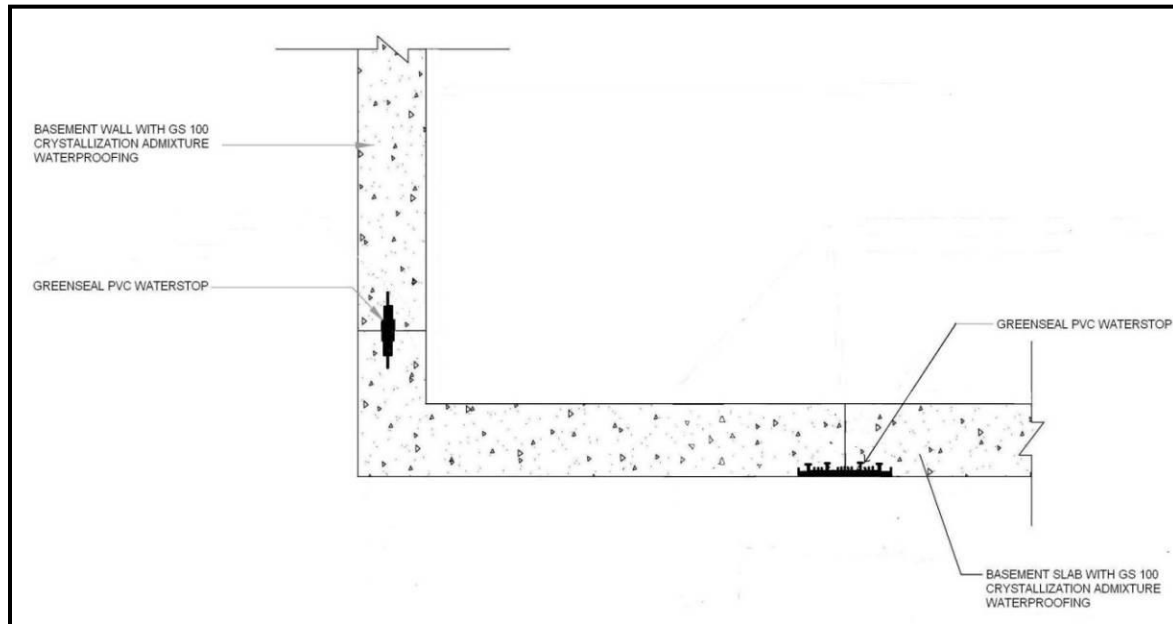
STORAGE AND SHELF LIFE

Greenseal 100 has a shelf life of 24 months from the date of production, if stored properly in its original, unopened and undamaged packaging. Store Greenseal 100 in a dry enclosed area.

HEALTH, SAFETY AND CLEANING

Greenseal 100 contains cements which may cause skin irritation. For precaution, protective gloves and goggles are recommended to be worn when handling this product. Always allow air to ventilate in the basement or in an enclosed area. If ingested, do not induce vomiting but seek medical attention. In case of eye contact, rinse thoroughly with abundant water for at least 5 minutes. In case of skin contact, wash affected areas with soap and water. Change to clean clothes and shoes. Wash contaminated clothes/shoes.

TECHNICAL DRAWING USING GREENSEAL 100 & PVC WATERSTOP WATERPROOFING SYSTEM



Guarantee

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. GREENSEAL reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorized by us. Our guarantee covers exclusively the quality of the manufactured product. We will not accept any responsibility exceeding the value of the purchased product.

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Greenseal is certified by
MS ISO 9001:2008 Quality Management System
ISO 14001:2004 Environment Management Systems