

# GrowSea™ CCW

## Nano-modified Cementitious Penetrating Crystalline Waterproofing Coating

Incorporating nanotechnology into cementitious crystalline waterproofing

### Introduction

Growseal™ CCW nano-modified cementitious penetrating crystalline waterproofing coating is a surface applied, unique treatment with nanotechnology for the waterproofing and protection of concrete in depth.

#### Crystallization process of CCW with nanoparticle

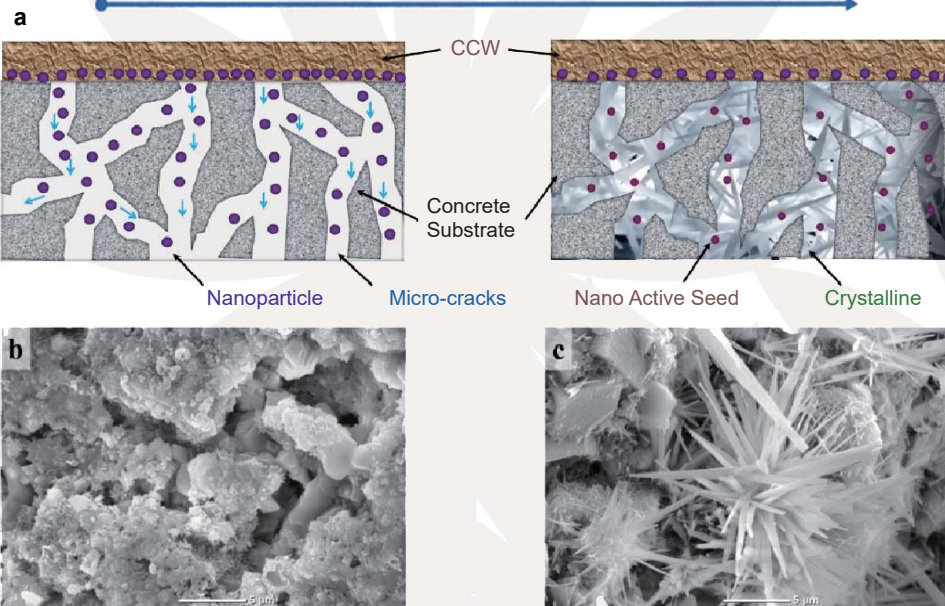


Figure 1 a) Crystallization process of nano-driven penetrating cementitious crystalline waterproofing material in concrete matrix; b) SEM of untreated concrete substrate; c) SEM of concrete substrate treated with Growseal™ CCW

### Product Description

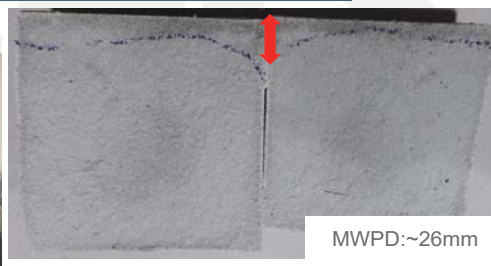
Growseal™ CCW consists of cement, quartz sand and active agents. The active agents in the powdery cementitious crystalline waterproofing material can penetrate into micropores, capillaries and shrinkage cracks derived by chemical diffusion, and then react with the incomplete hydrated cement and moisture to form insoluble crystals that integrate with the concrete to fill up the micro-cracks/voids by secondary hydration. Any presence of moisture over the lifespan of concrete will reactivate the agents to further seal up capillary tracts and hairline cracks. It has been widely used for "positive" and negative side waterproofing for building and construction.

### Special Feature

Waterproofing against positive water pressure: 0.7MPa for 72 hours



DIN:1048 Part 5



Waterproofing against negative water pressure: 1.4MPa for 14 days



Automatic concrete water permeability apparatus (CRD-C 48-92)

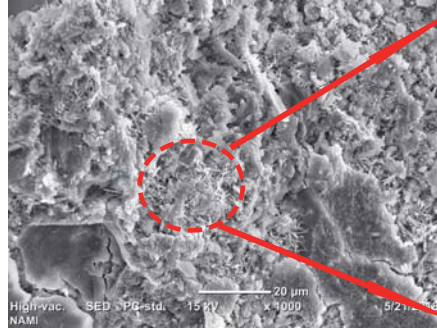


Growseal™ CCW

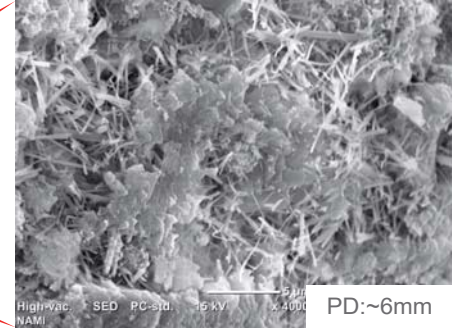
**Good penetration Depth of Active agent > 5mm**



without CCW



CCW applied on concrete



PD:~6mm

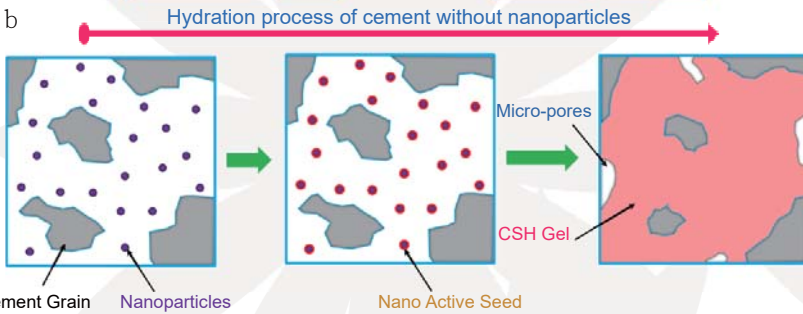
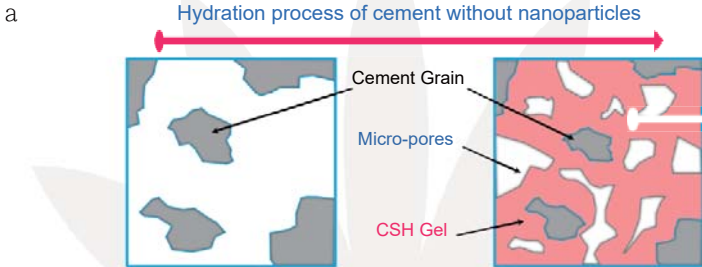


Figure 3 Schema diagram of the hydration and microstructure development process of pure cement (a) and cement with nanoparticles (b)

Not a coating or membrane:  
CCW become an integral part of concrete

**Flexural strength > 5MPa**



ASTM C348

**Compressive strength > 20MPa**



ASTM C109/C109M



Lift Pit



Basement Wall

Recommended for

- Concrete basement walls and foundation
- Elevator shafts
- Tunnel and subway
- Underground vaults