

# Datasheet:

# (C-S-H) Gel Nano Technology

## PRODUCT NAME

### (C-S-H) Gel

## EXCLUSIVE GLOBAL DISTRIBUTOR

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## DESCRIPTION

(C-S-H) Gel is a biochemically modified silicate solution that provides long-term waterproofing and durability selfhealing to concrete. It penetrates into concrete and reacts with free calcium and water to form a calcium silicate gel complex in cracks, pores and capillaries. This gel creates a sub-surface barrier against the ingress of water and contaminants such as chloride ions.

(C-S-H) Gel will seal existing cracks up to 2.00mm in width. Post application cracks of up to 1.00mm have propagated on Gel sites without any leakage through the slab. In the matrix the product remains reactive when in contact with water to provide autogenous healing properties to future hairline cracks which increase in size, hairline after hairline to become quite large cracks.

## TYPICAL APPLICATIONS

Concrete runway	Airport Runways
Taxiway	Podium Decks
RCC Road	Retaining Structures
Bridge Decks	
Rooftops	
Car – Park	
Marine Structures	

## SPECIALTY APPLICATIONS

Tiled areas (not terracotta or glass-glazed) Tiled shower recesses

Facades

Pre-cast elements & panels

## KEY BENEFITS

**Long-term performance** - No re-application or future maintenance required.

**100% trafficable after the first watering.** Minimal risk of damage during construction or thereafter.

**Fault finding** - If stubborn cracks are present - easy to find and fix. No lifting of membranes required.

## PERFORMANCE CHARACTERISTICS

- Permanently seals cracks up to 2.00mm.
- Reseals future hairline cracking.
- Water permeability reduced by 70%/to 5.0 ( $10^{-12}$  m/s) at 10Kg/cm<sup>2</sup>.
- Increases surface hardness from 6 to 8 on Moh's scale
- Reduces scaling in freeze-thaw environments by 89% at 50 cycles.
- Allows 84.1% moisture vapour permeability.
- Suitable for tanking applications (positive hydrostatic pressure) - tested to 400 metres.
- Non Toxic - Certified suitability for potable water.

## APPLICATION

### Basic Requirements

- (C-S-H) Gel must be applied to a clean, dry, dustfree concrete surface,.
- All curing compounds must have degraded or be removed prior to application.
- Any materials that retard penetration should be removed.
- Where segregation or voids are apparent, chip out, treat with (C-S-H) Gel then make good with cementitious materials.
- Good concrete practice must be followed such as adequate curing, compaction and vibration.
- Old or carbonated concrete requires a supplementary treatment to reinstate free calcium.

## Application Rates

**Normal:** 1 litre to 5 square metres on average. Can vary depending on substrate sorptivity.

**For cracked areas:** an additional 1 litre per 3 lineal metres is recommended.

## Method

1. Locate all cracks and flood with solution first ensuring they are filled with product.
2. Apply the solution to the remaining area at a rate of between 4-6 square metres per litre.
3. When surface becomes touch dry - (usually 2-6 hours depending on wind conditions and ambient temperature) flood spray the treated areas with water. If product still wet at 6 hours, begin first watering.
4. On Day 2 - 24 hours later water again.
5. On Day 3 - 24 hours later water again.
6. After the third watering, block drains and pond area for a minimum of 12 hours to verify a waterproof seal has been achieved.

## LIMITATIONS

**(C-S-H) Gel** is not suitable for sealing working/ volatile cracks as a result of structural defects or caused by mechanical damage. (See *LARGE OR STUBBORN CRACKS*)

The product is not suitable for sealing where segregation and voids are likely such as construction joints, pour joints. Nor suitable around penetrations where there is a nonmasonry/cementitious interface.

**(C-S-H) Gel** is not suitable for negative hydrostatic pressure applications such as the inside face of an basement/ retaining wall.

## CURING COMPOUNDS

Water curing is preferred. Aqueous Acrylics that degrade within 28 days are also suitable. Other materials such as chloro-rubber or wax emulsions require removal by grit blasting or grinding to allow the penetration of the product.

## DETAILING REQUIREMENTS

For more extensive information, please refer to the **(C-S-H) Gel** specification or design detailing sheets.

## Upturns/Hobbs

First preference is having upturns/hobs poured in-situ or bentonite waterstop places in joint. Next alternative is to stripseal the cold joint between upturn and slab with reinforced liquid applied membrane extending 100mm either side.

## Penetrations

Use bentonite waterstops or reinforced liquid applied membrane extending 100mm around penetrations, drains, fulgo inlets etc.

## Expansion Joints

Responsibility of others

## Control Joints

Create a joint extending ¼ the depth of the slab, prior to drying shrinkage of the concrete. Use an elastomeric joint sealing compound to seal the joint.

## LARGE OR STUBBORN CRACKS

Create a small dam and flood crack with product, repeating the application process. A liquid, fine grind cement slurry can be used in large, stable cracks. 5:1 ratio of water:cement. Consult Radcrete for the latest techniques and where cracks are volatile.

## MAINTENANCE

None required.

## PRODUCT PROPERTIES

Colourless, clear to slightly opaque, odourless, soapy feel.

Non-toxic & Biodegradable

Percent non-volatile solids: between 26.3 and 28.5%

Specific gravity at 25°C: between 1.20 and 1.25 Flash point - no true flash - boils at 101°C

Auto ignition temperature - N/A Non-explosive

Viscosity - 14.3 centipoise or 0.1172 Stokes Hazardous chemicals - Sodium Silicate (modified) pH 11.7

## HEALTH NOTES

Eye Exposure - Severe irritation. Flush with large amounts of water. Skin - No known ill effects have been noted however, with chemicals, one should always avoid contact with skin.

## PACKAGING

**(C-S-H) Gel** is available in 2ltr, 5ltr, 20ltr and 200ltr drums.

## SHELF LIFE & STORAGE

No known limit to shelf life.

Keep container sealed and avoid prolonged exposure to direct sunlight.

Always agitate drum or container before use.

## TECHNICAL SERVICES

Complete technical information including testing data and detailing is available from Radcrete Pacific and authorised distributors. Refer to the web site for specification information or e-mail radcrete.

## GUARANTEES

20 year guarantees for **(C-S-H) Gel** treated areas are available where approved applicators are used and in appropriate situations.

Contact the manufacturer for further information and confirmation of suitability.