

PRODUCT NAME

Radcon Formula #7[®]

MANUFACTURER

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DESCRIPTION

Radcon Formula #7[®] is a biochemically modified silicate solution that provides long-term waterproofing and durability benefits 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.

Radcon Formula #7[®] will seal existing cracks up to 2.00mm in width. Post application cracks of up to 1.00mm have propagated on Radcon 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

- **Rooftops & Podium Decks**
- **Car-parks**
- **Road & Rail Bridge Decks**
- **Wharf Decks & Marine Structures**
- **Airport Runways, Taxiways, Aprons**
- **Water Retaining 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.
- Reduction of chloride diffusion coefficient by 89% to 3.5 (10^{-12} m²/s).
- Water permeability reduced by 70%/to 5.0 (10^{-12} m/s) at 10Kg/cm².
- 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

- **Radcon Formula #7[®]** must be applied to a clean, dry, dust-free concrete surface, at least 28 days old.
- 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 **Radcon Formula #7[®]**, 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.
- Do not apply where ambient temperatures are below +5°C or above +40°C.

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.

PRECAUTIONS

Protect glass, aluminium, wood and painted finishes from overspray.

LIMITATIONS

Radcon Formula #7[®] 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 non-masonry/cementitious interface. (See **ANCILLARY DETAILING RECOMMENDATIONS**)

Radcon Formula #7[®] is not suitable for negative hydrostatic pressure applications such as the inside face of basement/retaining wall.

CONCRETE

Mix Design

Radcon #7 will meet or exceed its stated performance when applied to slag blend concrete and ordinary Portland cement Type GP concrete. Type C fly-ash replacement up to 30% of cement replacement. Mix designs with Type F fly-ash require manufacturers specification and approval.

Fall Lines

Pour structural slabs to fall lines where possible. No protective screed is required.

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 Radcon #7 specification or design detailing sheets.

Construction/Pour Joints

The joint should be formed by a vertical stop board during construction. Use bentonite waterstops in construction joints. The alternative is the application of a reinforced liquid applied membrane stripseal extending 100mm either side over the top of construction joints where covered, or grind and fill with non-shrink grout or polymer modified grout, or elastomeric joint sealing compound if there is risk the joint will move.

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.

SPECIFICATIONS

See **Radcon Formula #7** Specification at www.radcrete.com.au

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.

IDENTIFICATION CODES

Australian Adchem Code - Material 15660
USA Manufacturers Code C - 101

PACKAGING

Radcon Formula #7 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

15 year guarantees for **Radcon Formula #7** treated areas are available where approved applicators are used and in appropriate situations. Contact the manufacturer for further information and confirmation of suitability.

APPROVALS & TESTING

ABSAC Technical Opinion No.193	Water Absorption
Building Research Centre (UNSW)	Vapour Permeability
Condition Survey	Chloride Ion Penetration
Building Research Centre (UNSW)	Freeze-Thaw with Deicing Salts
Laboratory Evaluation	Chemical Resistance
ISAT to BS 1881	Slip Resistance
Water Permeability	Viscosity
Chloride Ion Diffusion (Taywoods)	Non-Volatile Contents
US Highway Dept (USA)	Relative Density
Bridge Deck Surface Treatments	pH Value
Adhesion of Asphalt to treated surface	Hardness Test
Resistance to Water Absorption	SINTEF (Norway)
Freeze-Thaw Scaling Resistance	Permeability - 400m head of pressure
Effect of Hot (160°C) Asphalt on treatment	Chloride Ion Diffusion -wetting/drying
Effect of Outgassing on material	SISIR (Singapore)
Outdoor test	Non-Toxicity
Warnock Hersey (Canada)	Potable Water Certification
Depth of Penetration	CSIRO
	Depth of Penetration

INTERNATIONAL REPRESENTATIVES

For your nearest agent click onto our website:
<http://www.radcrete.com.au/Distributors.asp>

FURTHER INFORMATION

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Note: The information presented is intended guide only and is correct to the best of our knowledge at the time of publication. It should not be considered as a definitive approval for suitability for a particular purpose. Please contact the manufacturer, distributor or approved applicator for confirmation of suitability. Ancillary detailing recommendations are provided in good faith to assist in achieving final waterproof result. We accept no liability for those recommendations or those products performance in use.