

# DENSI-PROOF™

## PRODUCT DESCRIPTION & TECHNICAL DATA



**THE NAME SAYS IT ALL**

Technical Memo 106-DP issued 13th January 2009

Densi-Proof™ is a one coat spray on system that deeply penetrates ( up to 200 mm and beyond ) providing permanent water proofing and protection. Withstands a minimum of 35 metres of Hydrostatic Pressure and can be effectively applied on the positive or negative side of concrete structures. There is minimum site disruption and provides early access to other trades. It is important to point out that Densi-Proof provides a permanent unique passive non destructive colloidal silicate gel barrier and should not be confused with temporary, soluble, weakly-linked large pore, thixotropic gels, that are formed using sodium silicates, through free lime reactions, which have proven detrimental to long-range concrete integrity. Densi – Proof technology is unique, it is not a Sodium, Potassium or Lithium silicate and has stood the test of time for over 25 years.

### Section 1 Description

Densi-Proof™ is a cloudy white (dries clear) odourless, environmentally neutral, zero VOC / VOS penetrant in a colloidal liquid base.

### Section 2 Basic Use

When applied to already-set Portland cement concrete, Densi-Proof™ integrally seals, waterproofs, densifies, and preserves, attributes beneficial to concrete of any age, at any point during its useful life span. Densi-Proof™ provides concrete an effective chloride ion barrier preserving its embedded steel while removing potential for hostile contaminant ingress and significantly reducing vapour transmission rate effectively also preserving treated concrete's integrity. A Densi-Proof™ treatment further increases surface abrasion resistance, and surface acid / chemical damage resistance. As Densi-Proof™ penetrates extraordinarily deep into concrete, it prolifically reacts with interior ingredients, in example, free alkali or unused calcium hydroxide residue, and etc. These reactions prolifically convert Densi-Proof™'s unusually low solids colloidal liquid to a 100% solids especially-formulated very insoluble precipitate, instantly providing additional density by becoming an integral part of the concrete, occupying its accessible porosity and other tiny voids, forming a breathable barrier which begins in concrete's transitional porosity, located beneath its large surface porosity and its small micro-porosity, and deeper. The uniquely-induced barrier generates no heat during its liquid to solids conversion, nor expansion pressures at any time. The internally-generated pollutant barrier remains resilient and consists of pore sizes that are much smaller than concrete micro pores, significantly diminishing void percentages thus permeability, allowing concrete to retain ability to breathe, expand, and contract as it needs to. The internal barrier, complete with its extremely small porosity, greatly reduces or eliminates the transmission of gases such as radon. Densi-Proof™ halts / greatly retards, internal existing corrosive activities, removing electrolyte availability, as it supplements, densifies, waterproofs, strengthens, and internally detoxifies concrete without deleterious effect to external appearance or physical characteristics. A Densi-Proof™ treatment will not impair concrete's surface traction quality and will further enhance its surface bonding ability. Areas that are to be treated need only be closed during treatment, and may be reopened immediately after treating. However, where a surface coating is planned, wait at least 24 hours, following a Densi-

Proof™ treatment (not necessary if surface was blasted), then flush with water, removing purged salts, particles, sediments, and etc., if any. Surface may then be prepared to coating manufacturer specifications. Densi-Proof™ is excellent as a primer application for surface treatments. Densi-Proof™ addresses reasons for potential early coating failures such as alkaline capillary moisture accumulation, saponification, laitance effect, and etc. Since Densi-Proof™ is applied to old or new concrete without affecting surface quality, it may be used for the enhancement of all concrete installations, whether traffic bearing or not, such as auto traffic pavements, bridge decks, parking garage decks, airport pavements, hydro dams, pavers, footpaths, driveways, parking lots, and etc. Densi-Proof™ arrests leakage through concrete even while occurring. For example, water storage reservoirs, water treatment tanks, or below grade concrete, and etc., with or without hydrostatic pressure. Densi-Proof™ will travel against water flow, when applied to negative side, permanently arresting the flow of water.

**AS A CURE METHOD:** Densi-Proof™ is excellent as an alternative concrete curing method, providing a cure equal to, or better than, water curing. Densi-Proof™ as a cure method provides concrete the usual benefits of a curing agent, plus, Densi-Proof™ provides special ingredients to the yet-available capillary mix water, waiting to participate in hydration reaction rates and processes, in the plastic or semi-plastic mix, reciprocating acceleration of hydration's reaction rates and processes, in turn generating increased volumes of cement paste / hydration product, in a significantly shorter period of time, utilizing all of the remaining capillary water and leaving none to later evaporate and leave void spaces. As a result of utilizing all remaining capillary mix water, the concrete's capillary void spaces become more segmented and smaller than usual. Densi-Proof™ provides concrete a superior cure imparting extraordinary strength, surface hardness and impermeability, subsequently translating to greatly-improved durability. The Densi-Proof™ cure method provides concrete an especially formulated permanent subsurface precipitate barrier containing pore sizes smaller than concrete's micro-pores, even further diminishing porosity / permeability effectively forcing gases such as radon to seek other avenues of escape, instead of passing through the concrete, where applicable. The Densi-Proof™ cure method leaves no surface residue to interfere with surface bonding quality, important where striping or

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applying a topical. Utilizing Densi-Proof™ as an alternative cure method produces concrete significantly more waterproof, abrasion resistant, freeze damage resistant, dust resistant, acid / chemical resistant, and etc.

## Section 3 Installation Suggestions

### On Already-Set Concrete:

*Note: In hot climates, mist-wet the surface with water and remove any puddles prior to application.*

Apply Densi-Proof™ using a medium to high-pressure airless spray unit, complete with fan spray nozzle. Holding spray tip 150mm from surface, apply Densi-Proof™ at minimum rate of 4.5m<sup>2</sup> per litre with an overlapping spray pattern of 50%. Begin application at the lowest elevation. For example, walls and slopes should be applied side to side, from the bottom up.

### As An Alternative Cure Method:

Apply with a low-pressure non-atomizing, spray apparatus such as a pump-tank sprayer or airless set at low pressure. Densi-Proof™ is ideally applied to the newly-poured concrete surface as soon as is practical following its surface finishing phase. Should conditions require the surface to be walked on, for application, concrete should be allowed the time to adequately harden, so as not to imprint or mar its surface during application. Recommended minimum coverage rate as a cure method is 4.5m<sup>2</sup>.

**Caution:** Like many construction materials including fresh concrete Densi-Proof™ contacting glass should be flushed with water and not be allowed to dry, since glass may etch. Densi-Proof™ will dull the shine on shiny aluminium, however, aluminium's integrity will be otherwise unaffected.

## Section 4 Precautions

1. Any coatings that may restrict access to the concrete's interior must be chemically or mechanically removed for Densi-Proof™ to penetrate.
2. Protect areas not intended for coverage.
3. Densi-Proof™ may etch glass or dull shiny aluminium and can be difficult to remove from other surfaces once it dries.
4. Do not apply on frozen substrate or when temperature is near freezing.
5. Densi-Proof™'s spray mist is not hazardous to breathe. However, we do recommend the use of a face mask during application. Refer to MSDS.
6. For more information read Material Safety Data Sheet available at

[www.protectcrete.com.au](http://www.protectcrete.com.au)

## Section 5 Technical Data

**Physical:** Liquid

**Colour:** Cloudy white (dries clear)

**Odour:** None

**Specific Gravity:** 1.10

**pH:** +/- 11.5

**Flammability:** None

**Toxicity:** None

**VOC / VOS Content:** none

**Surface Bond Quality:** Excellent

**Paintability:** Excellent

**Clean-up solvent:** Water

**Environmental Impact:** None / Neutral

**R-Factor Increase:** Up to 20 percent

**Chloride Screenability:** Excellent

**User Status:** Friendly

## Section 6 Some Advantages

- Permanently Integrally Waterproofs Concrete
- Provides Internal Humidity Stability
- Further Restricts Vapour Transmission
- Preserves Matrix and Overall Integrity
- Increases Surface Abrasion Resistance
- Excellent As a Coating or Topping Primer
- Concrete Densifier
- Improves Thermal Resistance (R-Factor)
- Increases Strengths
- Zero VOC & VOS Content
- Prevents Water or Free Moisture Migration
- Makes Ice Removal and Cleaning Easier
- Improves Dusting Resistance
- Improves Acid / Chemical Resistance
- Lowers Internal Chemical Reaction Potential
- Lowers Creep Deformation Potential
- Lowers Electrostatic Discharge Potential
- Improves Past Carbonation Effects

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