Curing of Concrete – Make the Right Choice

Article by Oxtek Solutions

Selecting an appropriate curing regime for concrete is critical to the successful outcome of a project, especially when the concrete itself is to be overcoated or have a topically applied flooring system installed. This article will provide clarity and raise awareness of the potential risks involved, and an alternate option to existing methods.

Curing is designed primarily to keep the concrete moist, by preventing the loss of moisture from within the concrete within a set temperature range, during the period in which it is gaining strength.

Concrete that is allowed to dry out too quickly, will not achieve its desired strength and may undergo considerable early age drying shrinkage. Inadequate or insufficient curing is one of main factors contributing to weak, powdery surfaces with low abrasion resistance

Curing of concrete is undertaken in a number of ways; air, water ponding, plastic sheet, membrane forming compounds or by chemical means, however, the most appropriate means of curing is often dictated by the site or the construction methodology.

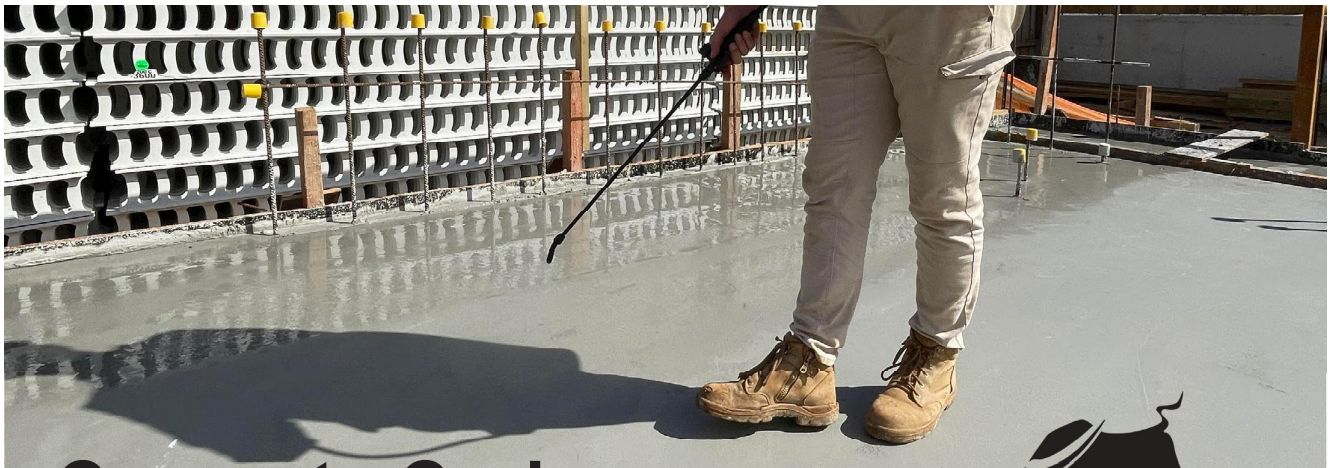
Water ponding is widely regarded as the preferred methodology for curing of concrete; however due to the logistical and economic difficulties associated with water ponding on most construction sites, it is often replaced with less effective membrane-forming compounds.

Curing compounds available in the market can be formulated from wax emulsions, chlorinated rubbers, synthetic and natural resins, and from PVA emulsions, and are normally sprayed directly onto concrete surfaces and then allowed to dry, forming a relatively impermeable membrane that retards the loss of moisture from the concrete. Their properties and use are described in AS 3799:1998 Liquid Membrane-forming Curing Compounds for Concrete. They are deemed to be an efficient and cost-effective means of curing concrete and may be applied to freshly placed concrete or that which has been partially cured by some other means.

That noted, it is extremely important to check the subsequent floor finish, as most membrane forming curing compounds require removal before the application of any applied floor finishes such as direct stick carpet and vinyl, epoxy or polyurethane coatings and ceramic tile adhesives.

Membrane forming compounds may affect the bond between concrete and subsequent surface treatments, so special care in the choice of a suitable curing regime needs to be exercised in such circumstances. The residue from some products may prevent the adhesion of flooring products and tiles onto the surface of concrete substrate and can contribute to failure of the installed flooring system if not successfully removed in their entirety.

The removal of these from the substrate surface can be costly in both time and money, not forgetting, the environmental and health impacts of dust generation and noise from the grinding process to remove them. Whilst here are UV degrading curing compounds on the market, these normally require in the region of 56 days continuous exposure UV to breakdown effectively, which during a typical construction schedule and on-site practice is unlikely to happen. → 32



Concrete Curing MakeThe Right Choice

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Oxtek Solutions Pty Ltd are the trusted brand in the flooring industry, offering a range of quality products that can be used as a curing regime and internal moisture barrier.

- 4 benefits with 1 easy application
- Internally cures concrete equivalent to water ponding
- Densify, Harden & Waterproof Concrete
- Non membrane forming - After trade friendly
- Colloidal Silicate technology – fills capillaries and voids
- Reduces Shrinkage Cracking, Efflorescence & Reo Corrosion
- Included in AS1884:2021
- Environmentally Friendly & HACCP Certified – 0.0g/l VOC
- 15 year warranty available with a project prepared specification

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Curing Compound & Internal Moisture suppressant
Spray Only Application

X220 Moisture Fix
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A flooring system friendly option to curing reducing your exposure to failure

The goal of curing of concrete, is to ultimately achieve the intended hardened properties of concrete that the structure has been designed for. Oxtek Solution's product range for the curing of concrete utilise the pore-filling ability of colloidal silicate technology, that is proven to be equal to that of water ponding and improve the hardened mechanical properties of concrete.

By contributing to a denser, less permeable, and porous structure, concrete treated with Oxtek Solutions proprietary colloidal silicate treatment have demonstrated increased compressive strength (both early and later age), reduction in drying shrinkage, and improved surface hardness and abrasion resistance.

Our products are single pack, one application, spray on systems that deeply penetrate new concrete, providing curing, permanent waterproofing, and surface protection. Topically applied following the finishing phase of concrete placement, the colloidal silicate penetrates the concrete leaving no film or residue on the surface of the concrete, therefore having no adverse effect on the subsequent floor finishes or coverings, providing improved flexibility and efficiencies to the project.

This option removes the need for additional mechanical preparation of the substrate surface to remove curing compound residue, and the resultant environmental and health hazards from dust generation, noise, and waste disposal.

Further time and money will be saved on the project, as the introduction of this technology following the concrete finishing phase, will eliminate the requirement for further treatment of the concrete substrate to address moisture retained within the concrete matrix and the significant risk this poses to premature failure of installed coating and flooring systems.

Oxtek Solutions

Oxtek Solutions have manufactured an effective product range to address complex moisture and bacteria related issues within concrete for over 24 years. All products are VOC free, user friendly, with a range of that are anti-microbial and HACCP approved.

Project warranties of up to 15 years are available on new construction projects, when supported by a Oxtek Solution's prepared specification.

Oxtek Solutions are members of both the Concrete Institute of Australia and New Zealand Concrete Contractors Association and actively committed towards best practice and environmentally friendly systems and procedures within the concrete and flooring industries.

Reference

CCAA Guide to Curing
CIA Z-09 Curing of Concrete
CCANZ TR15 – Guide to Concrete Production and Concrete Construction
ACI – 308.1-11 Specification for Curing Concrete.

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