

TECHNICAL BULLETIN – TB214

SILICA SOL CONCRETE WATER PROOFING TREATMENTS & ARDEX FLOORING PRODUCTS

Date, Thursday, 11 July 2013

INTRODUCTION & SCOPE

The information provided in this technical bulletin presents some issues for consideration should Ardex smoothing be applied for use over Ardex S4¹ reactive silica sol treatment applied to concrete subfloors.

This material is typically used as a concrete hardener and curing compound for green concrete, in addition to specialised properties as a waterproofing material.

MODE OF OPERATION (SILICATE MATERIALS)

Materials based on reactive silica are commonly used for cement and concrete treatment. A reactive silica sol based waterproofing treatment is colloidal $\text{SiO}_x\text{H}_2\text{O}$ which combines with lime phases in the cement to form a silicate gel within the cement matrix pores. Excessive applied solution can form a hard glassy surface skin, or further react with Carbon Dioxide in the air to form Carbonates, which form a surface crust and are still mildly alkaline. These are the reasons that surface preparation after treatment is required.

The resultant hydrated Calcium Silicate matrix as well as being generally unreactive, is quite hard and glassy, so seals the surface and increases wear resistance. This hardness and the property of these treatments to purge oily residue means that it is necessary to carefully examine the application of any subsequent coatings and material.

SURFACE PREPARATION

Ardex's recommendation is that concrete floors are mechanically prepared prior to the installation of smoothing cements, and it applies in this case as well. Typically the only preparation required is a light surface grind (24-40 grit) for new concrete to CSP2 followed by vacuum cleaning.

Alkaline reactive silica sols can alter the concrete pH and the Resilient Flooring Standard AS1884-2012 advises that the surface pH should be tested and not exceed pH 10. However, this also needs to be reviewed in conjunction with any product application datasheets for subsequently applied materials. Where the pH exceeds the recommended maximums, surface treatment of the concrete is likely to be required.

ARDEX SYSTEMS OR PRODUCTS SUITABLE FOR APPLICATION OVER ARDEX S4 TREATMENTS

Satisfactory adhesion for the following Ardex products is expected for treated and prepared concrete, not subject to rising damp. That is, concrete that has been treated to suppress construction moisture or coated as a curing compound system.

Ardex P51 and Ardex K15, K12, K10, Arditec NA and K80.

The above smoothing cements mixed with Ardex E25 where applicable

Ardex A45

Ardex Feather Finish

Ardex STS8 + Ardion E90

¹ Waterproofing must comply with South Australia Minister's specification SA F1.7 in conjunction with Australian Standard 3740, The Building Codes of Australia and the Housing Code."



Ardex Abaflex

Ardex WPM001 – Superflex Pre-Mixed

CONCLUSION

Where concrete has been treated with reactive silica sol, testing in the dry state has shown that Ardex P51 primer with standard Ardex smoothing cements, Ardex A45 and Ardex Feather Finish all developed satisfactory dry bond strength.

The performance of Ardex floor smoothing cements and particularly the Ardurapid™ products requires a dry concrete substrate with moisture contents compliant with AS1884. Ardex Australia does not guarantee any system where subfloor moisture is found to be present in excess of the standard specified moisture percentages.

The surface must be prepared by mechanical methods as per normal Ardex recommendations for concrete substrates.

IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition specific recommendations may vary from the information contained herein. For recommendations for specific applications/installations contact your nearest Ardex Australia Office.

DISCLAIMER

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

REASON FOR REVISION

24 month review. Addition of comments related to AS1884-2012.

REVIEW REQUIRED

24 months from issue

NSW 02 9851 9100, **QLD** 07 3817 6000, **VIC** 03 8339 3100, **SA/NT** 08 8406 2500, **WA** 08 9256 8600
New Zealand (Christchurch) 64 3384 3029 **Technical Services** 1800 224 070.

Web: <http://www.ardex.com> <http://www.ardexaustralia.com> email: techinfo@ardexaustralia.com

