



TECHNICAL BULLETIN – TB152

SILICA SOL CONCRETE WATERPROOFING TREATMENTS AND ARDEX FLOORING PRODUCTS

16th January 2025

INTRODUCTION & SCOPE

The information provided in this technical bulletin presents issues for consideration should ARDEX levelling compounds be applied over reactive silica sol¹ treatment on concrete subfloors.

These materials are typically used as a concrete hardener and curing compound for green concrete. They can also be added to create specialized properties such as waterproofing.

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 cement to form a silicate gel within the cement matrix pores. Excessive application can form a hard, glassy skin surface 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, which is generally unreactive, is quite hard and glassy, so it seals the surface and increases wear resistance. This hardness and the property of these treatments to purge oily residue means it is necessary to examine the application of any subsequent coatings and material carefully.

SURFACE PREPARATION

ARDEX recommends that concrete floors be mechanically prepared before the installation of levelling compounds, and this recommendation applies in this case as well. Typically, the only preparation required is a light surface grind for new concrete to CSP2 concrete surface profile followed by vacuum cleaning.

ARDEX SYSTEMS OR PRODUCTS SUITABLE FOR APPLICATION OVER SILICA SOL TREATMENTS

Satisfactory adhesion for the following ARDEX products is expected for treated and prepared concrete not subject to rising dampness. That is concrete treated to suppress construction moisture or coated with a curing compound system.

ARDEX P51 with ARDEX K15, ARDEX K12, ARDEX Arditex NA and ARDEX K80.

The above levelling compounds mixed can be mixed with ARDEX E25 where applicable

ARDEX A45

ARDEX Feather Finish

ARDEX Abaflex



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CONCLUSION

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

The performance of ARDEX levelling compounds, 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 using mechanical methods 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-ISSUER

Change of slogan and address

DOCUMENT REVIEW REQUIRED

36 months or whenever third-party suppliers change their recommendations.

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