



TECHNICAL BULLETIN – TB210

Use of Densifiers with Smoothing Cement Wear and Feature Floors

January 2025

INTRODUCTION & SCOPE

A common practice for concrete floors is to apply a reactive chemical such as a silicate or siloxane to the surface to harden it. Such hardening makes the concrete more resistant to damage and easier to clean. Ardex receives inquiries concerning the same practice with smoothing cements used as wear floors.

WHY ARDEX DOES NOT RECOMMEND THIS

The process by which the silicate material hardens the surface is chemical reaction between free lime Ca(OH)_2 in the concrete and the $\text{SiO}_x \cdot \text{H}_2\text{O}$ in the treatment solution. The resultant Calcium Silicate layer is both harder and denser than the original concrete.

In the case of Ardex smoothing cements, there are several reasons why this type of treatment should not be done.

- a. The formula of the smoothing cement is such that there is very little free lime available for the reaction to take place, both as part of the reaction, but also because the reactions occur rapidly. For any effect to occur, treatment must be done whilst the smoothing cement is very green, and this can create problems with surface damage during application and delayed curing.
- b. The silicate can react with another component in the smoothing cement leading to the creation of unstable mineral phases which over time break down. The most obvious result being unwanted expansion and cracking.
- c. Testing performed by Ardex has indicated that where dampness is present, mould growth appears to become a problem.

SUMMARY

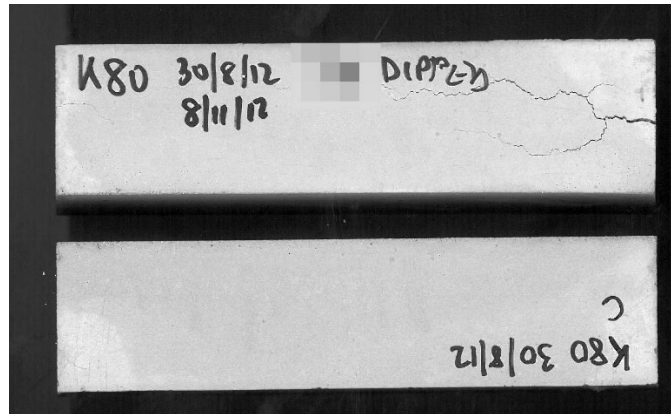
When asked if hardening solutions can be used on smoothing cements, the simple answer is no, and Ardex recommends against this practice to prevent problems with the topping in the future.

The same also applies to the application of silicate based waterproofing materials which work in the same manner and are often the same chemicals as the densifiers.

Figure 1.
Samples of an Ardex smoothing cement treated with a reactive silicate material and exposed to humid conditions over 9 months. The untreated material is on the left and treated materials are the three other sets of samples.



Figure 2.
Samples of K80 dipped in a reactive silicate and left exposed externally for 2 months.



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

ARDEX Logo and address update.

REVIEW REQUIRED

36 Months from date of issue

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