

## TECHNICAL BULLETIN

### THE DIFFERENCE BETWEEN SEALERS AND WATERPROOFING, AND THE USE OF SEALERS WITH DUNLOP TILE ADHESIVES

#### INTRODUCTION & SCOPE

Dunlop has had a number of inquiries concerning the use of tile sealers and in particular six sided sealing of stone tiles before installation. The following discussion gives our opinion and attitude to the use of sealers and whether they are applicable to be used with Dunlop tile adhesives.

#### USE OF SEALERS WITH DUNLOP ADHESIVES

Over the last four or five years we have examined the use of various stone and tile sealers from a range of manufacturers, with a variety of different types of tiles. The purpose of doing this was to determine whether or not these sealers interfered with the performance of the adhesive, particularly in damp environments. Dunlop is well aware that the use of sealers is common, but a customer understanding of their interaction with tile adhesives is at best patchy. We also do this because Dunlop has a general position that substrates must be prepared and free of contaminants, and this position is also applied to the properties of the tiles and anything that might be a bond breaker for the adhesive. We have trialled a range of cement based adhesives used for stone tiles with a range of sealers, commonly from major chemical manufacturers, and submitted by customers (normally stone suppliers), to determine whether or not there is a problem with the adhesive bond.

Our results have been highly variable between products as to what causes bonding problems and what does not. It was quite clear however that the results after the testing for wet conditions when examined, were not that good and commonly sealers resulted in the adhesive tensile and shear bond being marginal to unsatisfactory.

From these ongoing results, Dunlop therefore has developed the position that we do not recommend the use of sealers with Dunlop adhesives as a general rule, the exception being where the sealer is tested with the proposed adhesive and found to pass the requirements, and has a margin of safety as well. Where they are used without our prior agreement, adhesive performance warranties are voided. The use of DUNLOP NATURAL LOOK SEALER on tiles before application of the tile adhesive is not recommended either. *The sealers are applied after the tiles are bonded and grouted.*

#### GENERAL PROPERTIES OF SEALERS, ARE THEY WATERPROOFING?

Dunlop does do trials with sealing products with the intent of using some for topical applications in general, but also using them with some of our specialised flooring systems. The important point to recognise in this, is that these sealers (commonly intended for multipurpose usages including stone) are normally designed to stop short term staining. By this we mean, the

testing is performed to check whether or not a material (i.e. coffee, red wine, sauce, Coca Cola™ and so on) will produce a stain within a short time interval (say up to 24hrs maximum). We are not testing the systems for long term immersion or continuous exposure because that is not what the sealer suppliers intend for their products.

Examination of the sealing product literature and datasheets make this pretty clear. Long term exposure to constant dampness is therefore not really what these materials are intended to prevent. Our results have shown that prevention of continuous staining is difficult to achieve, and the longer the exposure the more likely it is the result will be unsound.

#### SEALING VS WATERPROOFING

This leads on to another point, in the construction sector the concept of waterproof vs water resistant is typically constrained by the definitions in AS4858 and AS3740. These standards refer to the properties required of waterproof membranes and installation of waterproof membranes. AS3740 says: *1.4.24 Waterproof (WP)* *The property of a material that does not allow moisture to penetrate through when tested in accordance with AS/NZS 4858.* Reference to AS4858 shows that it has a range of tests that membranes are required to pass, and penetrative sealers are not tested in this way. By definition they would not comply

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with cyclic movement requirements as they are not intended to form a film, and could not be appropriately tested.

For this reason our sealer DUNLOP NATURAL LOOK SEALER is not classified as a waterproof membrane.

### 1.4.26 Water resistant (WR)

*The property of a system or material that restricts moisture movement and will not degrade under conditions of moisture.*

These two statements define the difference between materials that can be used as waterproof membranes and those things which are not degraded by water but may also slow water transmission.

We note that the stone sealers we have tested, and even the one we supply ourselves DUNLOP NATURAL LOOK SEALER, are described as water resistant or repellent, and therefore not intended to be waterproof, or act as true membranes. Their purpose therefore is clearly as a simple stop for marking, not as a form of long term protection from constant exposure to moisture or to staining materials. They are certainly not designed to prevent constant rising damp problems nor sideways transmission of moisture from other areas.

Wet area installations are covered by AS3740 and require that waterproofing products are used in wet areas even where the substrates are water resistant.

The waterproofing system is designed to stop water getting out of the wet location and eliminate creat-

ing further problems. We use the membrane systems and not sealing materials to do this. The expectation therefore is that a waterproofing system should protect whatever else is outside the area that has been waterproofed, and that it will be done correctly.

An application of a sealer is not considered to be a substitute for correct waterproofing installations, and topical application to rectify an existing problem is not going to be successful either.

When in doubt, the wisest course of action is to ask the sealer suppliers what their products are really intended to do, and then create the installation design for waterproofing and any topical stain prevention accordingly.

### NOTES

Always refer to the product data sheets for specific usage details. The information contained herein 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 the product application.

Users are asked to check that the literature in their possession is the latest issue.

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### GLOSSARY

**Australian/New Zealand Standard AS3740-2010/2012**-Waterproofing of domestic wet areas.

**AS4858-2004**-Wet area membranes.

**Sealer**-Is a substance used to block the passage of fluids through the surface or joints or openings in materials. This is not the same as membrane or moisture barrier.

**Penetrative**-Able to make a way into or through something. So a penetrative sealer does not form a fill but enters into the material being sealed.

**Substrate**-the surface on which the product will be applied. Can be concrete, sand-cement screed, stone, or tiles.

**Waterproof membrane**-This has two separate definitions

**Membrane**-A barrier that is impervious to moisture

**Waterproof**-The property of a material that does not allow moisture to penetrate through it when tested in accordance with AS/NZS 4858.

**Wet areas**-An area within a building supplied with water from a water supply system which includes bathrooms, showers, laundries and sanitary compartments. Normally these areas have floor wastes.