



TECHNICAL BULLETIN – TB037

OLD ADHESIVE – KNOW THE RISKS

15th October 2024

INTRODUCTION

One of the most common inquiries ARDEX Technical Services receives concerns whether old adhesives must be removed from the subfloor or walls prior to the application of floor-leveling cement or ceramic tile adhesives. Removing these types of residues is one of the more expensive and difficult areas of substrate preparation, but it is critical to achieving a good final result.

The following extract highlights some of the issues associated with applying new materials over old adhesive residues, and a case history illustrates what can happen. This magazine article, being 28 years old, shows that this is an age-old problem.

*Italics reproduced from AFM - Australian Flooring Magazine Feb/Mar 1996 issue –
courtesy of "Elite Publishing Co".*

"It is well known that to eliminate the risk factor in relation to old adhesives, paving paint, curing membranes, etc., it is necessary to remove them entirely from the substrate before a leveling compound is installed, as laid down by the Australian Standards and many manufacturers procedure recommendations."

This can easily be achieved by mechanical means such as shot blasting and diamond grinding/shaving. However, on many occasions, contractors and installers are faced with the decision to either remove the old adhesive (coating) or install over it. Their decision may be forced upon them due to a variety of reasons, such as the size of the area, budget, and time allocated to do the job. But before going over the adhesives and compounds, it is worth considering the following.

Providing a primer or system that adequately bonds to most of these compounds isn't the problem, but you are then relying on the standard of the previous preparation, the bond strength of the old adhesive, and, of course, the cohesive strength of the adhesive or coating itself.

Considering this, be wary of the person who gives you a false sense of security by claiming his product can bond to any surface and, therefore, suggests you don't have to remove the old coatings. The risk of the adhesive (coating) lifting from the substrate or indeed splitting within itself can sometimes be very high depending on the type of floor covering, the environment and usage.

The Australian Standard AS1884-2012 has this to say about surface preparation.

3.1.1.5 Surface preparation

Before laying operations begin, materials such as grease, oil, paint, existing floor coverings and their adhesives, curing or parting agents, or any surface treatment, particularly oxides, markout paints, wax crayons which could adversely affect adhesion, discolouration or any other detrimental affect shall be removed from the subfloor via mechanical means.

Certain products can have a high surface tension, putting enormous pressure on the old adhesive such as parquet. Sadly, we see so many floors that have to be replaced because inadequate preparation or wrong advice given regarding the removal of old adhesives.

Some adhesives, such as the old bituminous types (Blackjack), may be reactivated by the new adhesive and, in time, cause delamination or allow staining to mirror through the underlayment and



subsequent floor covering. In this case, it is worth considering total removal of the adhesive, or the lesser preferred option is to use a leveling compound such as ARDEX ARDITEX NA at 3mm thick to provide a barrier, which will ensure that the old adhesive isn't reactivated by the new. The following figures are results from on-site pull-up testing. They vary with different manufacturers and, of course, the degree of water solubility.

COMPARISON RISK FACTOR TO BONDING TO CLEAN SOUND CONCRETE	
Pressure sensitive adhesive	13 times greater risk
Bitumen adhesive	8 times greater risk
Carpet adhesive	6 times great risk
Rain Damaged Concrete	Many times greater risk (dependant on water/cement ratio)

As can be seen from the above data, the risk involved in applying new flooring materials over preexisting residues is variable but consistently exceeds that for a properly prepared surface. Refer to Technical Bulletin TB041 for details on preparation.

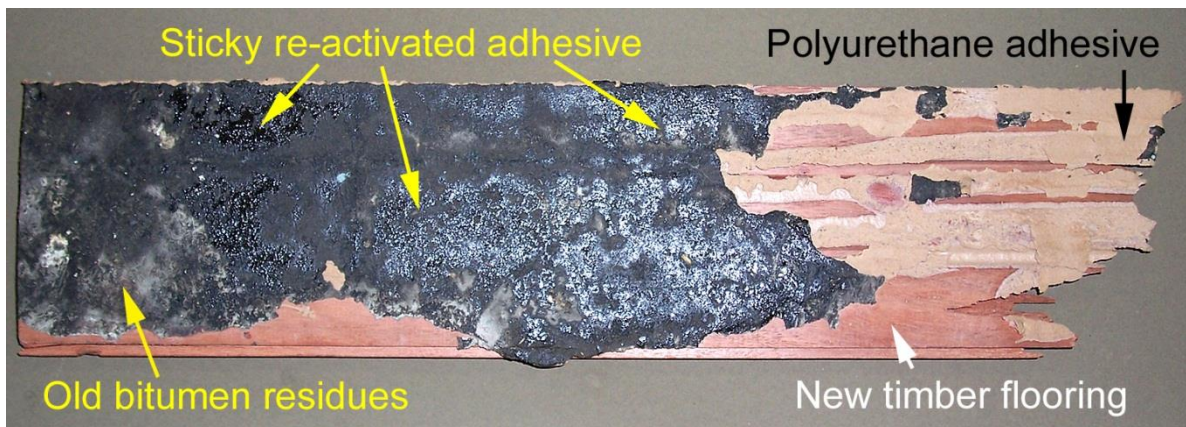
A TYPICAL CASE HISTORY

Early in 2004, a contractor was asked to lay a strip timber floor over existing bitumen-based adhesive residues (i.e., Blackjack type material) at the request of the builder. The contractor was not in favour of this and would have preferred to correctly prepare the floor by removing the old residues, but after receiving written instructions proceeded with the renovation without removing the residues.

The application went ahead with a skim coating of ARDEX Ardite NA applied directly to the old bituminous adhesive. The strip timber was a premium-quality Australian hardwood adhered to the ARDEX Ardite NA underlayment with a solvent-based polyurethane.

After a relatively short period of time, the timber floor blew off the subfloor, and ARDEX Technical Services was called to investigate the cause of the de-bonding.

The investigation identified the cause of the de-bonding as being related to the old adhesive interacting with the new. The adhesive used to adhere the strip timber was a polyurethane containing MEK and Toluene solvents. These volatile and highly mobile solvents penetrated through the permeable ARDEX Ardite NA layer into the bituminous adhesive, which was softened and then broke free of the concrete subfloor. The problem was compounded by the fact that the ARDEX Ardite NA was applied at less than 1mm thick, and so did not provide adequate coverage to reduce the solvent penetration.





The above picture shows a sample of the 'blown' floor with the various features highlighted. Areas of the bitumen that were re-activated were sticky and weak. The ARDEX Ardite NA layer was so thin that it does not show in the picture but is present between the bitumen and polyurethane adhesive.

The costly result was that the whole timber floor had to be removed, and the subfloor cleaned back to porous concrete before re-laying.

While 2004 might seem ancient history now, the same products are still on the market, and so the problem can still and does occur today.

In summary, the best approach is to remove the old adhesives back to porous concrete subfloors. In the worst case, if you have to go over these adhesives and compounds, try and reduce the risk factor as much as possible by using the correct primer and levelling system for the job. It is important to remember that whilst the primers and smoothing cements will usually bond to the contaminant, it is VERY common for the contaminant to be pulled off the floor by the smoothing cement, resulting in a costly replacement job.

Contact any ARDEX office for advice on the correct primer and for any technical assistance needed.

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 true and accurate to the best of our knowledge. 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.

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DOCUMENT REVIEW REQUIRED

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

Australia: 1300 788 780

New Zealand: 643 384 3029

Web: www.ardexaustralia.com

email: technical.services@ardexaustralia.com

Address: 2 Buda Way, Kemps Creek NSW 2178