

## In Your Toolbox: Coatings as solutions for the remediation pro



By Cole Stanton\*

Once upon a time, I received possibly the greatest compliment to an instructor. A full bird colonel at a military health conference said, "Son, you made some of the most narcoleptic bull-s@#s interesting". It is only fitting to start with that glorious personal moment, because this article is, in part, about the inherent excitement of paints and

watching them dry.

This is the first of an occasional series in INCLEAN on the categories of coatings used by professional restorers. Coatings are an excellent example of how understanding and using products properly, can make a big difference.

In this installment, the focus will be on the coatings the restoration professional needs for mould remediation. Where we go next is up to our readers. Let us know: asbestos, smoke seal, lead paint, HVAC resurfacing materials, HVAC sealants, something else? We will galvanise our coatings gurus internationally to drive the next installment to wherever you want to go.

### Mould-resistant coatings for structural surfaces

**Purpose:** prevent new mould growth on structural surfaces

When it comes to mould, it is a natural question. 'Is there anything you can do to keep it from coming back?' The 'it' is the mould, and the professional remediator or indoor environmental professional (IEP) is expected to have an answer that satisfies the instinctual common sense of the customer. What can be done to provide confidence that mould will not reoccupy their home or business or school? Mould compelled your customer to seek out professional restoration services. Mould persuaded them to turn over their building to investigation, containment, and workers enveloped in suits and masks. Can the customer be blamed for not wanting to go through all this again?

Benefits: Fundamentally, coatings for mould remediation provide two roles: First, coatings lock down residual fungal particulate. The second is to provide a surface resistant to future mold colonisation.

While the goal of remediation is always total mould removal, ours is not a perfect world. Any remediator that promises zero mould or 100 percent clean is reckless and unrealistic. When dealing with microscopic organisms and related particulate, there is always undesirable contaminants that escape our best efforts. Mould remediation coatings thus function similarly to 'locking down' like the final step in asbestos abatement. Locked down by a coating, particulates are adhered, can't be inhaled, and an exposure pathway is eliminated.

Preventative coatings can also provide a surface that inhibits future growth on or in the coating film for years to come. With spores always all around us, some will land on surfaces remediation efforts strived to clean. In the absence of a preventative, mould can germinate and recolonise. Nutrition for mould is available since growth was there before. As always, moisture is the trigger and even modest conditions can be encouraging to more growth. Slightly above normal humidity can suffice. Ordinary seasonal fluctuations, proximity to water, a chronic structural deficiency, or inherent building function (e.g. swimming pool) may not be possible to completely address. In such situations, mould-resistant coatings can provide a surface ideally inhospitable to new mould.

These coatings do not kill mould that inevitably lands from the air. Active ingredients present in the coating simply deter re-growth where the

labour and resources of remediation have been painstakingly expended.

#### Considerations:

**Actives:** It makes sense to ask a manufacturer about what the active ingredient is in their product. If the manufacturer can't provide this information, or defers that their ingredient is proprietary, this should give the remediator or IEP good reason to seek an alternative. No one can pick up a container of coating and observe quality, deficiency, or perceive in advance that a product will provide the services advertised by the manufacturer.

For example, there is typically a direct correlation between the amount of active ingredient and mould-resistance performance. Preventative coatings formulated for professional mould remediation should have a robust load of effective active ingredients. Coatings intended for other uses typically have far less ingredient and consequently less resistance to future growth. Virtually all house paints, for example, contain preservative ingredients that will prevent microbial activity from spoiling in the can, but an insufficient amount to resist mould after application.

**Permeability:** Since moisture was the trigger for the original mould issue that required remediation, we obviously want to avoid trapping future moisture. According to the IICRC S520, widely considered the most current and extensive standard of conduct and care in mould remediation, 'Antimicrobial coatings and sealants should not create a vapor barrier that could lead to a build up of moisture, and possibly contribute to a future microbial or structural problem. Products should demonstrate reasonable permeability as tested under ASTM D 1653.'

The latter is a test method for paints and coatings to measure how much water vapor can transmit through the dry film at a certain thickness, as measured in a unit of water vapor passing through a certain area at a certain pressure over a certain period of time – calculated in a unit called perms. There is no minimum or maximum number of perms a mould-resistant coating should have, but a manufacturer should be able to provide data that help the remediator and IEP determine if vapor passage capability is 'reasonable' for the application at hand.

Note that the ASTM test method is important. If a manufacturer cites their permeability using an ASTM method other than D 1653 or its cousin E 96, consider this a red flag. Why did that manufacturer use something else? For example, according to the product literature, one product was tested to an ASTM F 1249 Method with a reported breathing rate of 6 Perms. Sounds great, until further research identifies that the test method is for plastic packaging film (imagine your meat from the market). Compared to the standards for plastic film, the coating scored well on that relative perm scale. But when tested to the ASTM D 1653 method for paints and coatings, the breathability score dropped to 1.2, and on that scale 1 perm is generally considered the equivalent of a vapor barrier such as 6 mil polyethylene sheeting (U.S. Department of Housing and Urban Development (HUD)). Does your coating breathe, or is it a barrier trapping moisture now and into the future?

**Clarity:** Mould-resistant coatings are available in Australia in both white and clear. The latter can be especially useful as the clear dry film permits future visual observation to identify whether new growth is taking place. In addition, where a white coating in structures normally unpainted, such as crawlspace subfloors overhead or attics, would seem odd (a potential alarm to buyers in a real estate transaction, for example), a clear coating can obviate such concerns. One tip: consider

utilising clear mould-resistant coatings with a gloss. When the clear coating reflects light when shone at an angle, it is simple with a torch (or flashlight) to visually inspect to confirm adequate coverage and a contiguous film.

#### Regulatory aspects and requirements:

**Performance Testing:** Due diligence involves requesting documentation that demonstrates a coating performs as it claims. Ask for actual reports issued by an independent testing laboratory, above and beyond any manufacturer's marketing. There is no regulatory requirement to conduct such testing. It is voluntary, and the prominent and prudent manufacturers have performed lab testing and will make results readily available.

The most trusted test methods to seek are either ASTM G 21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi, and/or ASTM D 3273 Standard Test Method for Resistance to Growth of Mould on the Surface of Interior Coatings in an Environmental Chamber. The IICRC S520 standard states: 'Antimicrobial coatings used in post-remediation applications demonstrate optimal performance results when tested in accordance with industry standards ASTM G-21 ('0' rating) and ASTM D-3273 ('10' rating)'.

If a manufacturer can promptly supply the actual lab report for either method, and the report's conclusion is that the coating prevented growth, now there can be confidence in the preventative resistance of the product. And this documentation is valuable to provide to the property owner.

**Additional attributes:** Since at present there are no regulatory requirements for mould-resistant coatings, the industry must turn to the available standards of care like IICRC S520. In addition to mould performance testing and permeability, the other characteristics the standard recommends the remediator consider include ensuring that 'antimicrobial coatings and sealants should be water-based, low-odour, and contain low volatile organic compounds (VOCs)'.

**Procedural position:** An unfortunate and too common mistake is the application of mould-resistant coatings prior to the clearance procedure to determine that remediation has been completed, i.e., removal of mould to bring the property back to everyday conditions. The IICRC S520 standard describes this as verification not that a structure is mould-free, but instead that remediation has achieved a 'normal fungal ecology', i.e., no visible growth and a background amount of mould consistent with what would be expected for that structure in that place/climate.

This clearance procedure is a Post-Remediation Verification or PRV, and is typically a clearance conducted by a third-party consultant or IEP. Application of coatings prior to a PRV could interfere with sampling and visual observation to determine that adequate cleanliness has been obtained. Therefore, when mould-resistant coatings are applied is something that should be discussed and incorporated into the scope of work when the project is initially designed. Otherwise, when an IEP is involved with verification of project completion, they may not be comfortable with signing off that work was done sufficiently because the coating film is in the way of their observations.

For those still awake, you can now revel in your enriched understanding of mould-resistant coatings – what they do, and what they don't. Where do you want to go next? Let INCLEAN know what articles you want in the next issues.

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