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Surfactant Leaching

What is Surfactant Leaching?

Surfactants are ingredients within water-based paints that are critical to the performance properties of the product. Paint characteristics such as colour, pail stability, flow and levelling are either influenced or controlled by surfactants.

Surfactant leaching occurs when poor drying conditions cause the paint to dry too slowly, allowing the surfactants to rise to the surface of the paint film in concentrated amounts and thereby leaving oily or sticky deposits or residues on the painted surface.

All water based emulsion paints will exhibit this tendency to some extent and the effect is more noticeable on dark colours such as browns or dark greens. Heavily tinted colours are more susceptible than pastel shades.

Possible Causes

Areas of high humidity, such as a bathroom or laundry, can exhibit surfactant leaching given the right set of conditions. Surfactants usually evaporate readily from the paint film when the drying conditions are good or they are locked into the paint film. Poor drying conditions include cold substrates, cool air temperatures, high humidity and a lack of air circulation / ventilation or any combination of these.

Surfactant leaching is often encountered when a newly painted room is not given sufficient time to dry thoroughly before it is subjected to adverse conditions that can trigger the effect. For example, if a freshly painted shower recess or bathroom is used too quickly, the steam and humidity can leach out the surfactants from the uncured paint film. Another example would be a freshly painted laundry with a clothes drier that is generating high levels of humidity within a small closed room, which could easily trigger surfactant leaching.

On newly painted exterior surfaces surfactant leaching can appear after light rain or overnight dew (condensation), especially under eaves or balcony soffits.

Solution

Generally the leached surfactant does not lessen the durability of the paint film, it just looks unpleasant.

On exterior surfaces, surfactant leaching will usually weather off over a short period (approximately a month) without the need for intervention. To help wash it away quicker, it can be rinsed with clean water.

On interior surfaces, the leached material can be easily removed within a week. Allow the paint film to fully cure and harden, then wash with a mild soapy solution and a soft cloth or sponge, then rinse thoroughly with clean water. Care must be exercised when washing to prevent damage to the soft or any uncured paint film.

Under severe conditions, surfactant leaching may reappear once or twice until all the surfactant has been removed. The effect will be less noticeable each time and can be removed by washing in the same manner as prescribed above.

On rare occasions, the leached material may stain the paint surface. This would require a repaint once the surface has been thoroughly washed and the paint film has cured.

Prevention

To prevent surfactant leaching, avoid painting exterior surfaces in the later hours of the day if cool, humid or damp conditions are expected in the evening or overnight, especially if the temperature may drop to less than 10 degree overnight.

Allow the fresh paintwork in bathrooms, kitchens and laundries to fully cure and harden before washing or subjecting the paintwork to steam, condensation or high humidity.

Avoid using the shower for several days until the painted surface is fully dry. As a general rule, an interior paint film will take approximately 7 days to fully cure, harden and become washable.

It may take longer in adverse environmental conditions (i.e. high humidity, and/or cold temperatures).

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