

TECHNICAL ADVICE

CARE & MAINTENANCE

Colour fading



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What

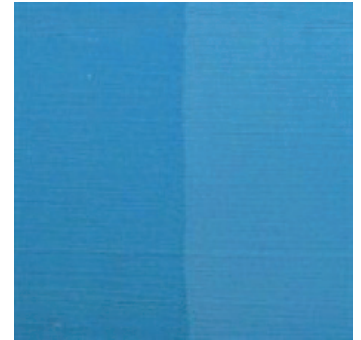
What is colour fading?

“Fading” is defined in AS/NZS 2310:2002 “Glossary of paint and painting terms” as “The loss of colour of one or more of the colour pigments within the paint film”. Premature and/or excessive lightening of the paint colour often occurs on surfaces with consistently high exposure to sunlight. Fading or poor colour retention can also be a result of the “chalking” process of the coating.

Colour change due to fading is a natural and expected form of paint degradation however it can also be easily confused with or exacerbated by other issues, such as environmental contamination which will also cause a noticeable change in appearance.

Over time, most colours will fade or lose their intensity to a varying degree, depending upon how much exposure to harsh atmospheric conditions takes place during the life of the coating system.

The Dulux® Weathershield® guarantee covers premature blistering, flaking and peeling of the coating system however it does not cover fading (colour change) or chalking of the paint film. This is because there are factors outside of the manufacturer’s control – such as prevailing climate and weather conditions – that can strongly influence the colourfastness of a paint film.



Why

When attempting to diagnose the issue, there are several important factors that will need to be considered closely:

- 1. Dirt pick-up.** When the surface is wiped down with a damp cloth, the cloth will indicate varying levels of surface contamination however it should be noted that the residue on the cloth may simply be dirt, dust, grime, industrial pollution, salt deposits or other extraneous materials that have no relation to the paint coating.
- 2. Chalking.** If the coating itself is breaking down there may be some evidence of a powdery “chalking” residue on the cloth due to ultra violet degradation. Some chalking is to be expected as all paints will be affected by UV radiation over time.
- 3. Application technique.** If the fading is occurring in “bands” of irregular colour or appearance, this is often a sign that there may have been some inconsistencies during application, resulting in fluctuations in the applied film build, leaving some areas more vulnerable to premature fading and other durability concerns.
- 4. Environmental conditions.** Other factors such as the temperature and humidity on the day of application also need to be taken into consideration as they have the potential to affect both the initial application and the overall appearance of the job.

Differences in the surface temperature on a roof can also cause colour differences. For example, darker bands are often visible along the screws and fasteners across a roof sheet as this area of the surface will be cooler due to the absorption of heat by the roof purlins or battens below.

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How does it occur

Factors and conditions beyond the control of the manufacturer or applicator, are known to accelerate such behaviour in exterior paints for example:

- 1. Sunlight and ultraviolet (UV) radiation:** Fading occurs more quickly in exterior environments where the painted surface is exposed to high levels of sunlight over an extended period*. Radiation emitted by the sun in the ultra violet (UV) and near infrared (IR) regions may be absorbed by pigments within the coating and strong absorption of these wavelength ranges can appear visually as fading of the paint film.
- 2. Hot/cold temperature cycling:** The greater the extremes of temperature, the greater the stress on the coating system which causes the paint degradation process to accelerate.
- 3. Application of darker coloured paint:** Darker colours tend to absorb more heat and UV radiation thereby putting greater stress on pigments present in the coating resulting in quicker paint degradation.
- 4. Coastal environments:** The combination of salt and atmospheric moisture creates a corrosive environment and constant exposure will cause coatings to start showing signs of deterioration (e.g. fading) more quickly than otherwise expected.
- 5. Correct film thickness:** Product application at lower than the recommended film thickness can accelerate the ageing process of the coating system allowing more UV to penetrate through the film, causing it to degrade more quickly and change colour.
- 6. Over-tinting:** Adding tinters to a white paint that is not intended for tinting or over-tinting a light or deep base can trigger fading problems.
- 7. Wrong product:** Using a paint that is designed for interior use only, for an exterior application is very likely to undergo unwanted colour change issues.

Solution

Unfortunately colour change due to the “fading” effect is irreversible once it begins to occur and the colour can often become quite irregular or patchy in appearance.

To eliminate the effect the entire surface will need to be pressure washed and/or scrubbed with a non-metallic scouring pad to remove all surface contaminants and chalking prior to repainting with an approved coating system. Seek further technical advice with regards to more fade resistant colours.

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Prevention To minimise the “colour fading” effect:

- Specify and apply paint products & coating systems that are acknowledged by the manufacturer to be UV resistant.
- Select lighter colours in general as they tend to absorb less heat & UV radiation.
- Select colours based on inorganic pigments and/or oxides which are generally more UV resistant.
- Establish a maintenance program from the start to ensure that the painted surfaces are washed annually and repainted within a predetermined time period.

References *Australian Standard AS/NZS 3730.20 states that the expected level of performance is “moderate” discolouration after 24 months (tested as per AS/NZS 1580.481.1.2)

Further information relating to paint degradation processes can be found in Australian Standard AS/NZS 2311 “The Painting of Buildings” Sections 1.6 & 1.9

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