

TECHNICAL ARTICLE

Fading of Colours

Colour fade is principally caused by the ultraviolet component of light decomposing the structure of coloured pigments or altering their chemical constituents. It affects some of the bright, intense colours in the "organic" or synthetic group of pigments used in modern coatings by paint and texture manufacturers.

Many of these colours are perfectly suited to indoors but change differentially on exterior exposure. Previously many of the bright pigments were compounds of lead, chromium, cadmium, and other toxic elements and were quite resistant to UV degradation. Health and Safety legislation now prevents the use of these pigments in architectural coatings.

In general, the clean and bright gold, red, pink, orange and violet tones can be expected to fade significantly more than the blue, green and earthy colours. We refer to the resistance of coloured pigment to UV degradation as its "light fastness".

In practice, very few colours are achieved by using just one pigment or colourant so it becomes difficult to predict the likely fading of a mixed colour. The degree and rate of fade are governed by the length of time of exposure to direct sunlight and the intensity of the sunlight. Over time, all colours will show some change. Colours also have varying degrees of "weather resistance" and their appearance can be altered by moisture, heat and chemical pollutants in the atmosphere.

The actual paint or coating also plays a major part. The rate of fade or darkening can be significantly inhibited or retarded in coatings that use a high-quality acrylic resin.

Another factor affecting colour fading is the thermal properties of the building substrate. Masonry substrates tend to absorb and hold heat well and evenly, whereas lightweight insulation board substrates such as EPS board and FC Sheeting tend to hold out heat transfer to the surface coating system.

This can result in a more rapid breakdown of the surface coating system if darker (more heat and light absorbing) colours are used. For this reason, the Light Reflectance Value (LRV) limits specified for EPS lightweight substrates are restricted to a value of 25 and above. For FC sheeting the LRV lower limit is 40. There are no lower LRV limits for conventional masonry substrates.

When selecting a colour scheme for a home or project it is important to keep the potential for colour fade in mind and to seek advice from the coating manufacturer.



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