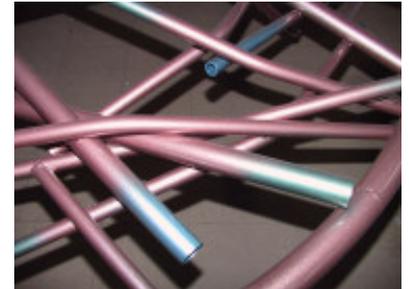


## Metallic Pigmented Coating Application

### 5.1.2

### Alignment Of Metallic Pigment

**Flip** occurs due to the **alignment** or orientation of the metallic or flake pigment. When metallic coatings are applied by spray, it is usual for the flake pigment to generally align itself in one direction, in a reasonably uniform pattern at the time of application. The type of spray gun used, application (or atomisation) pressure, fan width, distance from the gun to substrate, angle of spray and air and substrate temperature are all **contributing factors** to the orientation of the flake pigment. The end result being that two panels sprayed at the same time with the same coating may appear identical until you turn one of the panels upside down. They may then appear very different due to flip.



### How Are Metallic Finishes Best Applied?

For uniform appearance metallic or flake pigmented coatings are best applied by **spray** in a controlled environment. Typically, metallic coatings are best applied in an enclosed, **controlled air spray-booth** or within an enclosed space where air movement and spray pattern can be controlled.

Some metallic coatings are made with polyurethane resins, which contain small amounts of isocyanate curing agents. The use of these materials may be controlled by local regulations or State legislation and the applicator shall use these materials in accordance with all local rules and regulations, paying particular notice to the use of **Personal Protective Equipment**, while handling these materials.

Where the painting work involves items such as architectural panels, these should be measured at the workplace and cut to fit before painting commences. The upper edge (north alignment) of each panel should be marked on the back of each panel and then each panel should be painted and installed so that the directional alignment is the same for all panels. Failing to do so may result in panels being mounted in different directions, resulting in **perceived variations in panel colour** due to flip.



Spray application of waterborne metallic paint. Polyurethane paint requires full air-fed head gear.

### Can Metallic Finishes Be Repaired Or "Touched Up"?

Metallic coatings are not difficult to repair as a coating film but they are quite difficult to repair and achieve the same metallic (and colour) appearance as the original surrounding coating due to:

- UV degradation of the original coating. All organic coatings are degraded when exposed to UV light. Therefore, the longer a coating has been exposed, the harder it is to colour match later.
- Metallic coatings are more difficult to repair because the flake pigment will not achieve the same orientation in the newly applied coating as the original. The flake pigment reflects light, which becomes part of the colour spectrum seen by the eye. If the alignment and light reflection are not the same across the area sighted, the eye perceives differences in colour.

In most cases, repairs to damaged metallic coatings are best achieved by fully repainting the surface areas out to surrounding borders or to the point where the reflective angle of the substrate changes.

## Metallic Pigmented Coating Application

## 5.1.2

### Can Metallic Finishes Be Applied By Brush Or Roller?



Application by roller or brush generally results in a **vastly different finish** from that of spray application, as the metallic pigment particles are highly irregular in shape, and therefore **inhibit the natural flow-out** of the wet paint. The movement of the brush or roller also alters the orientation of the flake pigment. For this reason, metallic paints exhibit higher brush-marking, roller-marking and stipple than other types of paint.

Normally, broadwall brush and roller application involves "cutting in" with a brush at the corners of each wall, and a roller to apply the paint over the area and up to and overlapping the brush-applied sections. With metallic paint, this will obviously create some problems with consistency of finish, as each method results in **widely differing** surface texture and perceived colour. (Refer to photo above left.)

With regard to roller application, a small sample of a metallic coating can look fairly uniform (and is particularly so on architectural samples, which are often A4 or smaller), but when the same metallic coating is applied to broadwall areas, vertical "**tramlines**" (parallel lines caused by the delivery to the wall of slight excess of paint from each end of the roller), stop-start **horizontal lines** (caused by inconsistent speed of the roller) and **stipple** are obvious. (Refer to photo above right.)



The **brush application** of metallic paint can be carried out to **deliberately achieve** a striking, aesthetically pleasing, **special effect**. In such cases, **samples** applied by the applicator contracted to do the job must be completed according to specification and the sample **approved** by the specifier before commencement of the job. If the application is to be done **in-situ**, then a **site sample** performed exactly according to specification and with same the tools and techniques as to be used for the entire job must be completed and approved prior to commencement of work.



Broad-brush application of metallic paint. Flip and brushmarks successfully create a striking effect.

### Can I Apply Metallic Coatings On Any Substrate?

No! Whilst metallic coatings generally flow out less readily than solid colour coatings, they do flow out to a certain extent due to the **resins and solvents**. **Rough** surfaces, such as unfinished concrete, provide **poor surfaces** for sprayed metallic coatings. The pits and pockets of rough surfaces cause the resins and solvents to **pool** in these areas, causing **uneven distribution** of the **metallic flake pigment** and a poorer finish. **Smooth** surfaces are ideal for sprayed metallic coatings, as the level surface allows even flow—out of the coating and **uniform distribution of the metallic flake pigment**.

### Can Metallic Finishes Be Applied Outdoors?

This is not generally recommended, as **uncontrolled air movement** across the substrate can affect the way the coating lays down upon the substrate, which can lead to random metallic deposition, resulting in an uneven metallic finish. If outdoor application cannot be avoided, **partitioning** the area may **improve control** of ambient conditions around the substrate.

For more information, please contact the Dulux Protective Coatings Technical Consultant in your state.