

## Opacity

Similar to liquid paint, Powder coatings contain pigments to provide an appearance of the required colour. Just as we experience in painting a ceiling or wall. As the layer of paint applied becomes thicker, less of the original colour of the substrate can be seen through the paint. Thus the coating is said to become more opaque & less translucent with increasing thickness.

Even though powder coatings commonly exhibit a natural wavy appearance that suggests they may be thick, the typical powder coat layer is less than 1/10<sup>th</sup> of a millimetre thin (< 100 microns).

Alike that experienced by a house painter, different colours exhibit varying abilities to cover (or “hide”) the substrate for the same thickness of paint. This property of paint to cover, is termed its “Opacity”.

As there is a large selection of colours to choose from, we find that the various pigments used to create colours, each have varying degrees of “Opacity”. As an example, the pigments used to create certain white/yellow colours, such as “White Birch”, “Satin White” & “Chalk USA” tend to have lower Opacity than other colours. As a result, at the same coating thickness, more of the substrate can be seen through the paint when compared to other colours.

Given that powder coating is an electrostatic process. The resultant powder coat thickness will naturally vary to a degree across the surface profile. Typically edges attract more powder & recessed areas attract less. In general, the more complex the shape, the more likely that paint thickness will vary across the surface. It is for this reason that an inconsistent appearance can result from “Low Opacity” colours.

Whilst this phenomenon does not occur regularly, understandably, the probability of such increases when a lower opacity colour is applied to a job that contains complex sections and /or involves assembly of various post coated items on the same plane.

## Risk Reduction

If your job contains complex sections and /or involves assembly of various coated items on the same plane, it is suggested that you Avoid using known “Low Opacity” Colours (E.g.; White Birch, Satin White, Chalk USA ... etc) and choose colours that have a higher opacity. If in doubt, contact your AAF branch before specifying.

## Edge Pull

Another related phenomenon with paints & powder coatings is known as “Edge Pull”. This occurs in areas when a sharp edge is present on the metal substrate. Whilst the powder coating is being cured and is in a gel state, the sharp edge can cause the powder to pull away. The result is lower powder build along that sharp edge. In certain colours with lower opacity, this sharp edge can be seen through the coating and appears as a fine grey line.

## Risk Reduction

To minimise the risks of Edge Pull becoming apparent, it is suggested that

- Items be designed/manufactured with as large a radius as possible.
- Wherever possible, use higher opacity options over known “Low Opacity” Colours

## Note

Details contained herewith do not constitute specific advice, merely they are provided as a matter of courtesy and as general information only. You should seek your specialist’s advice, to ensure that any information or suggestion meet your specific requirements. Reference should be made to the respective standards for the finish concerned as well as Australian Aluminium Finishing Pty Ltd (AAF) Terms and Conditions of Sale. Latest releases of Australian Standards are available for purchase via the following website; [www.standards.com.au](http://www.standards.com.au)

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