

METALLIC EFFECT POWDER COATINGS

This document is intended for the applicator as additional information on the parameters that considerably affect the quality of the metallic effect finish. Caution must be exercised when working with metallic effect powder coatings. Prior to application, the suitability of the entire coating system must be established by comparison with the powder manufacturers' reference samples in order to ensure the finish of the metallic effect is adequate. The following recommendations are necessary for satisfactory results.

Colour

Powder coatings are formulated to meet colour standards such as RAL. Despite the stringent quality control measures undertaken during production, a complete batch-to-batch consistency cannot be guaranteed. Upon request, the powder coating manufacturer supplies production panels of individual batches. Batch-to-batch consistency is comparable to that of non-metallic powder coatings. However, application process and equipment are also a factor in the final colour/effect of the coating. An acceptance test must be performed on the actual application equipment before processing. The colour/effect variables, particularly when powder is recycled, must first be established by producing upper and lower tolerance samples. To largely eliminate colour/effect differences caused by the coating system, an entire coating job must be processed on the same coating line, without parameter fluctuations, preferably without interruptions and with consistent recycling percentages. Manual coating process is likely to produce variations of colour and/or effect due to inconsistent film thickness. Manual coating process must be adjusted to automatic processing with respect to colour and effect. Coating thickness is of importance as variations will cause colour/effect differences.

Colour/effect variations inherent to metallic powder coatings can be directly linked to content of metallic pigments. Generally, fine flakes of metallic pigment are used. The positioning of the flakes within the applied coat determines the metallic effect/colour. Experience shows that all application parameters may influence the positioning of the flakes as well as colour/effect. It is important that throughout an entire coating job all equipment is left at precisely the same settings. Coating one entire job with a variety of equipment should be avoided or else considered only after exact adjustments and comparisons produce identical test results with different equipment.

Application equipment

Different powder coating guns, systems and spray parameters are often the cause for varying results. It is very important to work only with nozzles suitable for metallic powder coating application. Depending on the type of object to be coated, powder coating should be applied with a flat-spray type nozzle with an aerated impact disk in an even cloud pattern.

Reclaim

Generally, metallic powder coatings are suitable for reclaim. To achieve a consistent colour/effect it is important for the coater to establish a ratio of reclaimed/virgin powder coating and adhere to this ratio. Repeated or exclusive use of reclaimed powder coating is not advisable. Using reclaimed powder coating without introduction of virgin powder will not produce satisfactory results. Since not all metallic effect powder coatings are equally reclaim-consistent, the virgin powder coating percentage must be established via upper and lower tolerance samples.

Processing

Very few metallic powder coatings are suitable for Tribostatic processing. Suitability must be verified prior to application. Due to differing charging characteristics of powder coatings and metallic flakes, not all metallic flakes are transported to objects being coated which could cause a shift in colour/effect. Changeover from Tribostatic to electrostatic is not advisable. Cleanliness of the application system is very important since arcing may cause short-circuiting at the gun.

Grounding

When working with metallic powder coatings, proper grounding of equipment as well as objects being coated is very important. This contributes to a high degree of colour/effect consistency.

Coating durability

When powder coating architectural or curtain wall parts with metallic effects, it is important to observe the powder coating manufacturer's guidelines for one and two-coat systems. Longevity of metallic powder coatings cannot be generalized and must be discussed with the manufacturer's representative prior to application, with particular reference to special requirements, such as wear and scratch resistance, cleaning recommendations, colour-fastness and chemical resistance. The powder coating manufacturer needs complete information about all the requirements that the powder coating is subjected to in a project/application in order to provide appropriate advice. In most cases top coating a metallic powder coating with a clear powder coating is necessary to withstand outdoor influences such as humidity and acid rain which may affect the colour or effect. Follow specific cure instructions for two-coat system.

General recommendations

A pre-coating should be applied on parts that are difficult to coat prior to actual application since a subsequent touch-up job may produce clouding. When both sides of a finished part must be coated, the side most visual in its final use should be coated last. The final orientation of curtain wall panels on a building must be established prior to powder coating and all panels must either be powder coated horizontally or vertically to achieve the same colour/effect throughout a coating project. Variations in the heat-up period are to be avoided. Parts with varying wall thickness cannot be coated at the same time. Please observe and consult the powder coatings instructions sheet.

Working with metallic effect powder coatings requires precision. All guidelines must be observed. Proper communication between the coater and the customer and between the coater and the powder coating manufacturer must be established to ensure all provisions are given for a quality finish.