



# Metallic effect powder coatings

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**This data sheet is intended as a guide for the applicator, informing the user of parameters, which considerably affect the quality of the 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 shade of the metallic effect. The following recommendations are necessary for satisfactory results.**

**COLOUR:** Powder coatings are formulated to meet colour standards, i.e. The RAL standard. Despite the stringent quality control measures exercised during production, a complete batch-to-batch consistency cannot be guaranteed. Upon request the manufacturer therefore supplies production panels of individual batches. Batch to batch consistency is comparable to that of non-metallic powder coatings. However, application process and equipment also are a factor in the final colour/effect of the coating. An acceptance test must be performed on the actual application equipment before processing. Those colour/effect variables, particularly when powder is recycled, must first be established by producing an upper and lower tolerance sample. 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 is likely to produce variations of colour and/or effect due to inconsistent film thickness. Manual coating must therefore 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 coatings can be directly linked to content of metallic pigments. Generally fine flakes of metallic pigment are used. Positioning of those flakes within the applied coat determines the metallic effect and colour. Experience shows that all parameters of application may influence the position of the flakes and thus also colour/effect. It is therefore 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 only work with nozzles suitable for metallic powder application. Depending on the type of object to be coated, powder should be applied with a flat-spray type nozzle respectively 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 reclaim and virgin powder and adhere to this ratio. Repeated or exclusive use of reclaimed powder is not advisable. Using reclaimed powder without introduction of virgin powder will not produce satisfactory results. Since not all of the metallic effect powders are equally reclaim-consistent, the virgin powder percentage must be established via upper and lower tolerance samples.



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**PROCESSING:** Very few metallic powder coatings are suitable for Tribo/airstatic processing. Suitability must be verified prior to application. Due to differing charging characteristics of powder coatings and metallic flakes, not all of the metallic flakes are transported to the work piece, thus possibly causing a shift in colour/effect. Changeover from Tribo/airstatic to electrostatic is not advisable. Cleanliness of the application system is most important, since arcing may cause short-circuiting at the gun.

**GROUNDING:** When working with metallic powder coatings proper grounding of equipment as well as work piece is very important. This contributes to a high degree of colour/effect consistence.

**COATING DURABILITY:** Observe manufacturer's guidelines for one and two coat systems, when coating architectural or curtain wall projects with metallic coatings. Longevity of metallic 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 manufacturer needs complete information about all the requirements that the powder coating is subjected to in a project / application in order to give appropriate advise. In most cases top coating of metallic powder coatings with clear powder coatings is necessary for outside influences such as humidity, acid rain etc., which may affect the colour or effect. Follow specific cure instructions for two coat systems.

**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 coating and all panels must either be coated horizontal or vertical to achieve the same colour/effect throughout a coating project. Variations in the heat-up period are to be avoided: parts of a varying wall thickness cannot be coated at the same time. Please observe and consult the powder coatings instruction sheet.

**Working with metallic effect powder coatings requires precision. All guidelines must be observed. Most important is proper communication between coater and the customer, but also between coater and coating manufacturer, to assume that all provisions are given for a quality finish.**