

VR201.1 – IGP coating powder with pearl mica effect

Introduction

Effect powder coatings with a pearl mica effect place much higher demands on Processing compared to uni powder coatings. In principle, the darker the effect powder, the higher the effect content and the finer the effect pigment, the higher the processing requirements. When processing effect powder coatings, the design of the coating plants and the application parameters have a significant influence on the coating result. Errors lead to differences in shade and effect and produce inconsistent coating results. The processing guideline VR 201.1 was drawn up to assist users in the error-free processing of IGP effect powder coatings. There are essentially five processing categories for IGP effect powder coatings, ranging from 1-STAR* to 5-STAR****. You can recognise the processing category of your product by the stars on the container label of your powder coating.

Order organisation

One batch - one application equipment

If the components are installed directly next to each other, we recommend determining the amount of powder required for coating the entire job, allowing for a certain reserve and coating the entire job with one finished batch. This minimises colour and effect differences when coating the entire application.

Experience has shown that Application with devices from different manufacturers (due to different characteristic curves of the high-voltage generators) produces different results in terms of shade and effect formation.

Electrostatic parameters such as the level of the set high voltage, the setting of the current limiter (μA), the use of ion-leakage rings and the processing of effect powder coatings with opposite polarity (tribo coating: positive polarity, corona coating: negative polarity) significantly influence the shade and effect formation.

The coating booth is another influencing factor. In contrast to steel booths, plastic and glass booths prevent the flow of electrostatic charge through insulating booth walls. This results in different coating results in terms of shade and effect formation.

Avoid processing the same job on different types of booths. When processing a specific commission, no changes may be made to the processing or application parameters on the coating plants. Once system data or application parameters have been determined to be optimal, they must be documented and strictly adhered to. This procedure and parameter settings must also be adhered to when coating subsequent orders.

We strongly recommend the production of limit samples to check that they match the ordered shade (incoming inspection!) and to monitor the shade and effect throughout production. A check for any deviation from the tolerance limits must be carried out under suitable lighting conditions before delivery of coated parts (outgoing inspection).

If coatings on different systems cannot be avoided, or if the geometry places high demands on the application process, we strongly recommend the use of effect powder coatings from the IGP-Effectives® series.

Processing

Automatic coating is always preferable to manual coating. Any manual application required in semi-automatic mode should always be carried out as a pre-coating.

Color tones and effect fluctuations as well as cloud formation are to be expected with a purely manual coating due to uneven powder application.

The manual coating must therefore always be coordinated with the results of the automatic coating. For objects to be coated on both sides (e.g. profiles), the main visible side should be coated last.

Processing of coating powder with pearl mica effect should always be carried out using corona guns with electrostatic charge in negative polarity without ion-leakage rings.

Depending on the product, the spraying distances between the object and the gun vary between 300 and 400 mm.

Reclaiming

In powder systems with cyclone recycling systems, the finest powder grains and effect particles are not separated in the cyclone and are continuously removed from the powder. This removal results in a shift in the ratio of effect particles to the base colour. In order to completely rule out colour changes due to effect losses during coating, pearl mica products can only be processed in pure loss mode without reclaiming.

In the case of automatic coating with a corresponding batch size, a certain amount of reclaimed powder can be added depending on the categorisation of the shade. Please refer to the table at the end of the document. In this case, we recommend creating limit samples before the start of production and using them throughout production to check the shade and effect. If there is a deviation in shade and effect, the proportion of fresh powder should be increased accordingly.

It is recommended to feed part of the powder through the reclaiming process before coating begins in order to use a stable mixture of fresh and reclaimed powder during the coating of the first object.

If very high demands are placed on the stability of the effect image or if a high proportion of overspray is to be expected due to the geometry of the components, we recommend the use of IGP-Effectives®. The special production of this powder type enables the use of up to 90% reclaimed powder.

Maintenance and Cleaning of the system

In order to ensure the reproducibility of coating results on the coating system, the maintenance work recommended by the manufacturer to replace wearing parts must be carried out on the entire system at the intervals specified for this purpose. Various functional checks, such as checking the high voltage, must be carried out at regular intervals.

Mounting the parts

The mounting of the workpieces must be determined before coating (horizontal or vertical). The distances between the coating objects within the hanger as well as the distances between the hangers should be as small and even as possible. If the distances between the hangers are large, it is advisable to switch the guns on and off automatically via a parts detection system. It is also important to ensure that similar workpieces are always coated together.



Curing

Different curing temperatures and heating speeds of the parts must be avoided, just as thick and thin-walled parts must not be coated at the same time. The recommended curing window must be adhered to.

Earthing

When processing coating powders with pearl mica effect, particular care must be taken to ensure sufficient earthing. This measure contributes significantly to a uniform consistency of the shade and effect formation.

Applicable documents

Technical data sheets

- T1106 Cleaning recommendations for IGP coating powders with pearl mica effect
 - T1000 Categorisation of effect powder coatings
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Recommendations for Processing IGP pearl mica effects

The values given here are recommendations. When processing pearl mica products, the processing parameters of the coating plants must be adapted to the product to be processed.

Systems and processing parameters (equipment / accessories)	Settings (parameters) according to categorisation					Possible effects (re)
	*****	****	***	**	*	
High voltage setting (gun) kV	See VR 201.2 IGP-Effectives®	50 - 90	50 - 90	70 - 80	70 - 80	Set for
Current limiter μ A (gun)	See VR 201.2 IGP-Effectives®	<80 μ A -> normal operation <10 μ A -> reduced edge greasing				Red pos gre
Total air m ³ /h conveying + dosing air (inner diameter of powder hose)	See VR 201.2 IGP-Effectives®	12 mm = 5 m ³ /h 11 mm = 4 m ³ /h 10 mm = 3 m ³ /h				Pre pul the clo opt at
POE powder hose with integrated earthing (injector gun)	See VR 201.2 IGP-Effectives®	Grounding the injector				Pre ele cha the the hos
Nozzle (gun) with flat spray nozzles	See VR 201.2 IGP-Effectives®	suitable				goc eve at
Nozzle (gun) with baffle plate	See VR 201.2 IGP-Effectives®	suitable				Red dep at
Processing with / without ion-leakage ring (gun)	See VR 201.2 IGP-Effectives®.	Processing without ion-leakage ring recommended.				Pre spi
Coating spraying distance (gun-workpiece)	See VR 201.2 IGP-Effectives®	> 250	> 300	> 350	> 350	Pre stre clo for
Coating with tribo guns (guns)	See VR 201.2 IGP-Effectives®	Not suitable				Sig col dev pos
Powder delivery from fluidised container	See VR 201.2 IGP-Effectives®	well suited, fluidising air as required				Un pov and clo
Powder delivery from the box	See VR 201.2 IGP-Effectives®	Limited suitability				Sor slig irre cor the

