

## IGP coating powder with IGP-Effectives® process

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### Introduction

IGP-Effectives® is an innovative finishing process. It provides exceptional application safety for effect powder coatings. Here, unlike conventional effect powder coatings, the application parameters or plant configuration only have a small influence on the coating result.

Processing parameters and recovery mode cause only very slight differences in color and effect. Irrespective of the plant and the application, IGP-Effectives® generally creates a uniform coating result.

This VR 201.2 processing instruction informs users about the relevant processing characteristics of IGP-Effectives®.

IGP coating powders with effect agents are agglomerate-free and ensure problem-free, reproducible processing. IGP effect powder coatings come in five main processing categories, from 1-STAR \* to 5-STAR\*\*\*\*\*.

The products in the IGP-Effectives group are all classified as 5\*, therefore they do not require any higher skills of the coater than processing single-color powder coatings.

### Fundamental Information

The principal characteristics of these effect powder coatings are their application safety, flow stability, and excellent suitability for processing in recovery mode.

Using IGP-Effectives® technology significantly reduces the otherwise very high requirements that apply to processing effect powder coatings.

The user gets a product which is easy and safe to use under the standard quality criteria in the application process. IGP-Effectives® technology is mainly used for weather-resistant façade qualities in the IGP-DURA®face 58, 57 and 59 series (e.g.: 5807U; 5703U, 5903U). It is indicated by a "U" as the fifth character of the product key.

### Project organization

#### One batch, one application facility

If the components are installed directly adjacent to each other, we recommend determining the required powder amount for the entire order and planning a certain reserve in order to coat the entire application with a single production batch.

This guarantees absolute color and effect consistency of the coating on all objects. For subsequent orders, we recommend exclusively using powder coatings which have also been produced using IGP-Effectives® technology.

### Processing

When processing IGP-Effectives® powder coating products, we recommend using corona guns with a negative polarity electrostatic charge. We recommend setting the high voltage to between 60 and 90 KV. A current limitation is not necessary.

At an electron flow of at least 2  $\mu$ A, the products can also be processed using tribo pistols. Here, we recommend spraying and curing a sample before starting production.

Compare this with an approved limiting sample. Depending on the electron flow ( $\mu$ A), deviating nuances in the lightness can occur if you use a tribo pistol.

In order to achieve a smooth, even surface, especially on large-surface objects, observe a pistol spraying distance of at least 180 mm. Further measures during the application ensure the best possible coating thickness distribution on the components, for example optimizing the movements in long-stroke operation using sinus programs or matching the pistol spacing to the stroke height in short-stroke operation.

Ideally, manual application that is necessary in semi-automatic operation should always be performed as a preliminary coat. If this is not possible due to the technical system used, manual application can also be used for the follow-up coating with IGP-Effectives® effect powder coatings. In this case, we recommend observing a spraying distance of more than 200 mm, at least for the final coating. This also applies for pure manual application.

### Recovery operation

As a basic principle, IGP-Effectives® effect powder coatings are very stable in circular processing and ideally suited to use in recovery mode.

Due to the proportion of overspray that is recovered via the separation system, a concentration of fine powder particles (fine grains) may occur when recovery by means of a filter.

During the processing of IGP-Effectives® in recovery mode using a cyclone, fine powder particles (fine grain) are continually extracted from the powder coating. In both cases, the grain spectrum is altered.

In order to achieve a consistent grain spectrum during recovery mode, we recommend the continuous addition of fresh powder.

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### Plant maintenance and cleaning

To ensure the coating plant achieves reproducible coating results, the maintenance work for replacing parts subject to wear in the entire plant must be performed at the specified intervals, as recommended by the manufacturer. Various functional tests, e.g. checking the high voltage, must be carried out at regular intervals.

### Suspension of the parts

The suspension of the parts must be determined prior to coating (horizontal or vertical). The intermediate spacing between the coating objects within the hangers as well as the spaces between the hangers must be kept as small and regular as possible. If there are large distances between the hangers, it is advisable to automatically switch the guns on and off via a parts detection system.

Furthermore, it must be ensured as far as possible that similar components are always coated together.

### Curing

Different curing temperatures and heating speeds of the parts must be avoided. Furthermore, thick and thin-walled parts must be coated separately. Observe the recommended range of curing conditions without fail.

### Earthing

Special attention must be given to sufficient earthing when processing coating powders with a pearl mica effect.

This measure significantly contributes to a uniform shade and effect formation consistency.

### Other applicable documents

Technical data sheets; TI 106, cleaning recommendation for IGP coating powder with pearl mica effect.

TI 000 classification of effect powder coatings

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### Recommendations for processing IGP-Effectives® effect powder coatings

The values stated here are recommended values. When processing IGP-Effectives®, we recommend that you adjust the processing parameters of the coating plant to the product to be processed.

Plants and/or processing parameters (devices / accessories)	Adjustment (parameters) according to classification	Possible effect (comment)
	*****	
High-voltage setting (pistol)	60-90 kV	setting range for processing
Current limit $\mu\text{A}$ (pistol)	80 $\mu\text{A}$ → ≤ 10 $\mu\text{A}$ →	→ for normal operation → reduces spray-back effects
Total air flow m <sup>3</sup> /h / conveying + dosing air (inner diameter of powder hose)	12 mm = 5 m <sup>3</sup> /h	prevents pulsing of the powder cloud, ensures optimal atomization.
	11 mm = 4 m <sup>3</sup> /h	
	10 mm = 3 m <sup>3</sup> /h	
POE powder hose with integrated earthing (injector pistol)	injector earthing	prevents electrostatic charging of the powder in the powder hose.
Nozzle (pistol) with flat spray nozzle	suitable	good depth effect, even atomization.
Nozzle (pistol) with baffle plate	suitable	reduced depth effect
Processing with / without ion-leakage ring (pistol)	with or without suitable	reduces spray-back effects, improves flow properties at coating thicknesses of > 120 $\mu\text{m}$ .
Spraying distance of coating (pistol to part)	> 180 mm	even coat thickness distribution
Coating with tribo pistols (pistols)	for tribo-suitable products, possible after checking the shade	nuanced deviations in lightness compared to corona coating
Powder feeding with injector so that the powder flows inside the container	highly suitable, fluidizing air as required	even powder feeding and powder cloud
Powder feeding with injector from the supply container	suitable	partly slightly irregular feed.
Screening with US screen (screening machine)	suitable for mesh size >140 $\mu\text{m}$	better fluidization, more even application
Maximum share of recovered powder in circuit mode without checking the shade	≤ 90%	if the share is higher, risk of alteration of the grain size distribution

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	*****	
Document processing parameters (control unit program)	recommended but not necessary	facilitates reproducibility of the coating results
Limiting sample predetermine	not necessary, input inspection sufficient	prevents the possibility of subsequent complaints due to high shade deviations
Coating on various coating plants	possible	the same batch should be used on all plants
Manual pre-coating of the parts in semi-automatic operation	possible	
Manual follow-up coating of the parts in semi-automatic operation	possible	spraying distance >180 mm
Pure manual coating	possible	Spraying distance >180 mm