

TI119 – Colour tolerances for uni and effect powder coatings

Introduction

The perception of colour is subjective. What is a perfect match for one observer is already a visible deviation for another. Nowadays, the paint industry uses the most objective and standardised measurement method possible for quality assurance. This has led to the Association of the German Paint and Printing Ink Industry defining guidelines for the visual and metrological colour matching of standard and sample for powder coatings.

Colour tolerances for Uni colours powder coatings

For the development and production of Uni colours powder coatings, IGP follows the VdL guideline 10 colour tolerances (Association of the German Coating and Printing Ink Industry). This guideline applies exclusively to Uni colours powder coatings used in the architectural sector. It describes reference samples, measuring methods and the order of magnitude of the permissible colour tolerances for metrological colour differences between reference and new batches between two production batches.

This guideline does not apply to finished coated objects or components, but also exclusively to the assessment of the colour of powder coatings applied to test panels under standardised laboratory conditions.

The guideline does not cover

- Colour changes due to application parameters of the Processing company
- Colour changes due to different light types (metamerism, see DIN 6172)
- effect powder coatings, as these require a different type of assessment

The result of the visual inspection is decisive for the release of a batch; the colour measurement is an aid. (Reference: VdL Guideline 10, point 5: Testing of colours)

Colour tolerances for effect powder coatings (metallic and mother-of-pearl)

Effect powder coatings create their optical impression through reflection, sometimes also transmission and the alignment of special effect pigments, which is why this depends heavily on the viewing angle and the lighting. Further influences arise, for example, from the application equipment used and the selected application parameters.

In contrast to Uni colours powder coatings, no meaningful metrological colour tolerances can be standardised for effect powder coatings. This is explained in detail both in VdL Guideline 10 and in the supplementary VdL data sheet on Processing powder coatings with metallic effect (metallic and interference).

There are no metrological colour tolerances for this.

Release process at IGP

At IGP, new production batches of effect powder coatings are approved exclusively visually - in direct comparison with the corresponding standard and the last approved production. The current batch to be produced is set between these two samples and is assessed and approved exclusively visually by trained colouristics experts under standardised conditions.

Approval process at the coating company

As effect coatings, especially effect powder coatings, are sensitive to application influences such as high voltage settings, spraying distance, recovery rate or workpiece geometry, limit samples must be created by the coater if application conditions differ. These should be created under real production conditions and agreed with the customer in order to avoid colour differences, especially due to the alignment of the effect additives, which become visible during subsequent assembly. To achieve optimum coating results, please refer to our processing guidelines (Technical Information TI 000 Categorisation of effect powder coatings).

Note on IGP sample sheets

The sample sheets provided by IGP serve as colour references in the sampling process. As these sample sheets are applied under standardised laboratory conditions, they do not reflect the customer's downstream application-specific conditions and influences that may occur individually at the respective coater in the production process. They are therefore not applicable as limit samples for the respective coating process. Differences in colour or effect caused by application parameters such as spraying distance, high voltage, recovery rate or workpiece geometry cannot be reproduced on the sample sheets and must be taken into account as part of the customer's own production approval process.
