

NEW ANODIC ELECTRODEPOSITION COATING

Electrodeposition Coating with a Metallic Look

A new anodic electrodeposition coating now allows electrically conductive substrates to be coated in a metallic look. The coating system has a high stability and has already proven itself in practice.



In addition to the well-known advantages of electrodeposition coating, such as environmental friendliness, maximum material transfer efficiency, precise adjustment of the film thickness and a high level of automation, it is now also possible to coat electrically conductive substrates with an anodic electrodeposition (EDP) coating with a metallic look.

The use of metallic EDP is possible wherever a decorative metallic coating is required on a conductive substrate,

for example for shelf systems, office furniture, domestic appliances or metal fittings.

The new electrodeposition coating was developed by FreiLacke. The full system supplier is one of Europe's leading suppliers of electrodeposition coatings.

High system stability

The use of high-grade poly acrylate resins ensures that the new coating system (Freiotherm-ATL-metallic) achieves a

high quality for the end coating with regard to its visual appearance and its chemical and mechanical resistance. The manufacture of the metallic pigments was optimised in order to guarantee their compatibility with other components of the coating. A high system stability is achieved by applying a binder-like coating to the pigments.

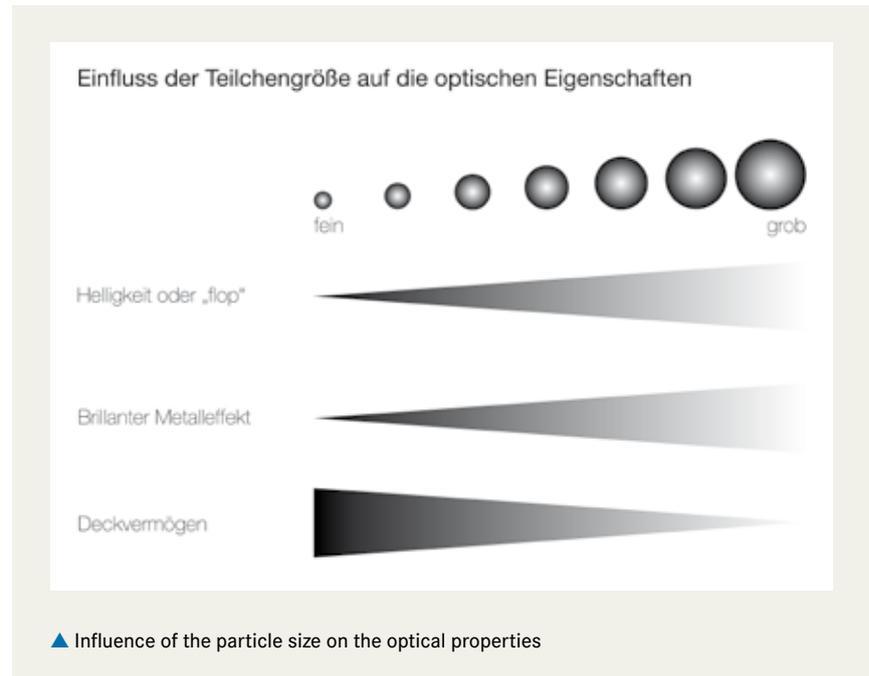
Careful handling required

The coating is already being used on an existing EDP line. Before the coating

process, two-stage alkaline cleaning is carried out, followed by three rinsing zones and final rinsing with fully deionised water. The EDP bath is followed by two filtrate spray rinsing stations. The parts then go into the baking oven where chemical crosslinking takes place.

During the development phase in the laboratory, the plant and equipment criteria that influence the system were determined. For example, special attention should be paid to the bath stability and constant coating quality during the EDP coating process. Mechanical and chemical influences can change the metallic pigment and therefore have a negative effect on the metallic appearance of the coating. Therefore, it is important to concentrate on careful handling of the coating material, especially in the areas of material circulation and filtration, as high shear forces occur here.

Filtration is performed using special filter elements that allow the platelet-shaped metallic pigments to pass through. Ultrafiltration can be carried out using commercially available spiral-wound modules. In practice, the ultra-



filtration modules have an above-average service life with very constant permeate performance.

The alignment of the metallic pigments is also influenced by the DC voltage applied. Among the decisive factors for the metallic effect are the anode/cathode relationship and the

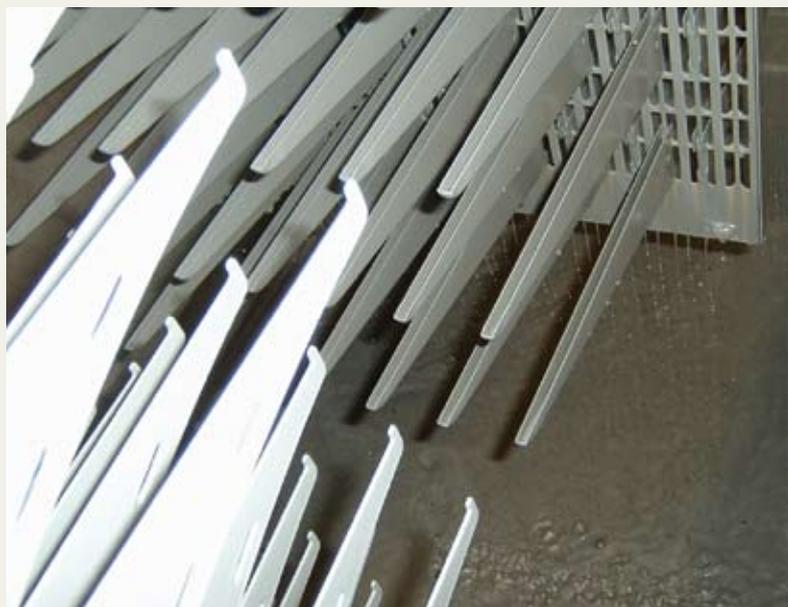
magnitude of the DC voltage applied. —

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**KEY PROPERTIES OF THE
NEW EDP COATING**

- Light-resistant and UV-resistant one-coat system
- No transparent topcoat necessary to maintain the optical properties
- Very good substrate hiding
- Cavity coating; uniform appearance on geometrically complex parts
- Variable film thicknesses between 15 and 40 µm
- High scratch-resistance and wear-resistance, low fingerprint sensitivity
- Very good condensation water resistance
- Good shear stability
- Very good ultra-filterability
- No cost-intensive phosphating required in the pre-treatment area



▲ Parts carriers leaving the EDP tank