STAPA®  
STANDART®  
Zinc pastes and 
Zinc flake powders 
for corrosion protection
Corrosion protection with STAPA® Zinc pastes, STANDART® Zinc flake powders and Zinc granules

Production process
The raw material for the flakes is atomized, irregular Zinc granules with a minimal purity of 99.995 acc. to DIN 1706 which is milled into lamellar particles in ball mills in the presence of a lubricant in white spirit. The pigment suspension produced after milling is screened, pressed on filter presses and homogenized in mixers to the standard combination of 90% solids and 10% solvent.

The same raw material is also used in a dry milling process in the presence of a lubricant to get flake-shaped Zinc powders.

Corrosion protection with STAPA® Zinc pastes and STANDART® Zinc flake powders

ECKART is a leading international manufacturer of metallic and pearlescent pigments for the paints and coatings industry, the graphic arts industry, the plastic, lightweight concrete and the cosmetic industry.

In the paint industry one of the most important corrosion protection applications are anti-corrosive coatings, wherein lamellar Zinc powders and pastes are used as functional pigments.

The anticorrosive properties of zinc have been well-known for decades; thousands of tons of Zinc dust are yearly used to protect goods and constructions everywhere in the world.

The development of Zinc flakes began back in the 70s, initiated by the desire for anti-corrosive pigments for thin films which offer good corrosion protection under mechanical loads. For a producer of diverse lamellar metalpigments like ECKART it was obvious to manufacture also lamellar (flake-shaped) Zinc pigments to fulfill these requests. Actually, the main application field for Zinc flakes is still the coating of mass goods in a special dip coating process.

With the zinc pastes and zinc powder portfolio, ECKART offers solutions to meet the requirements of high-quality products with outstanding corrosion protective properties.

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Mode of action of Zinc flakes
Apart from the cathodic corrosion protection provided by Zinc, Zinc flakes offer the additional advantage of excellent barrier protection. Cathodic corrosion protection is guaranteed by factors including conductive contact between Zinc and the steel surface and between the Zinc particles themselves. Whereas spot contact with relatively high resistance is achieved with Zinc dust particles, Zinc flakes have two-dimensional contact which brings about a higher current density and hence a better anti-corrosive effect, though it can also lead to more rapid degradation of unprotected Zinc flakes. To counteract this, fillers in flake form and/or additional anti-corrosive pigments are often incorporated in the formulation.

Due to their platelet-like structure, flakes have a markedly larger surface area than spherical Zinc dust. The correspondingly higher binder uptake allows formulations with a lower pigment volume concentration (PVC), which in turn leads to favourable application and paint properties.

Paint properties, application and handling
Especially the large surface area/high binder uptake, which means less need of Zinc in the formulation lead to a lot of advantages:
- Greater flexibility
- Better substrate and intercoat adhesion
- Good overcoating properties
- Low porosity and permeability
- Smooth surface area
- Metallic appearance
- Lower settling tendency
- Sediment easier to stir up
- Less Zinc to store / to handle
- Higher productiveness
- Less Zinc need per m² –> ecological advantage

The use of Zinc flakes offers predominantly technical and ecological advantages without any economic drawbacks.

Production flowchart Zinc paste (Wet milling process)

For further information or guiding formulations please contact our technical department: info.eckart@altana.com
This information and our technical advice – whether verbal, in writing or by way of trials – are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to verify the information currently provided – especially that contained in our safety data and technical information sheets – and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility.