



***ProFLAKE* Zinc Flake Pigments –**
A Perfect Combination of Barrier Effect
and Galvanic Protection

ProFLAKE Zinc Flake Pigments – Our New Product Series for Heavy Duty Applications

The morphology of ProFLAKE Zinc pigments combines the two positive aspects of a barrier effect with galvanic protection, leading to superior anticorrosion performance in heavy duty applications.

Your Benefits

Technical

- more flexible coating films
- less weight filled in the paint container (lower density of a Zinc Flake based primer)
- very low degree of white rust formation
- very good anti-corrosion properties (two in one concept)

Economics & Sustainability

- lower VOC content (calculated on the coated area)
- lower metal content without loss in performance
- depending on Zinc raw material prices cost saving potential of up to 30%, calculated on coated area in comparison to a Zinc rich primer system

Description & Properties

- Shape: Flake-like platelet
- Aspect ratio: approx. 40/1
- Thickness: 200 – 600 nm
- Average particle size: 5 – 35 µm
- Material density: 7,10 g/cm³ (Solid for PVC calc.)
- Oil absorption Value: ca. 22
- Specific surface area. 1,2 m²/g

Formulation guideline for ProFLAKE Zn based primers.

Dosage:

- PVC Total 35 – 45 % (Fillers + pigments + Zinc Flake)
- PVC Zinc Flake min. 12 – 20 %
- PVC Fillers & Pigments 15 – 25 %

Incorporation

- Add pigment to the binder (binder to Zinc Flake ratio approx. 1 : 3 – 4)
- Add Zinc Flake while stirring
 - Stirrer equipment: Dissolver Disc !
 - Speed : 4 – 6 m/sec
 - Time: 20 – 30 min.

Suitable Coating Systems

- 2C Epoxy, 2C PU; Epoxyester; Alkyd; PVB Acrylic ; 1C PU ; Polyaspartic, Polysiloxane; High Solids; UV- Curing Systems; Powder Coatings, Stoving finish; Ethyl silicate

Substrates

- Pre-treated steel substrates (e. g. SA 21/2)

ProFLAKE Zn Products

ProFLAKE	Metall	PSD	SC in %	Solvent
ProFLAKE Zn 1590 MS	Zinc	15	90	Mineral Spirit
ProFLAKE Zn 1400	Zinc	14	100	Solvent free
ProFLAKE Zn 2000	Zinc	20	100	Solvent free

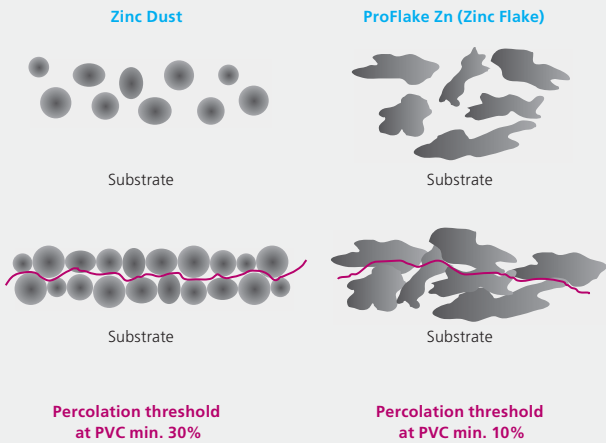
Evaluation of the percolation threshold via EIS carried out by the FPL e.V. Stuttgart

Requirements

The Zinc Particles have to touch each other and the substrate.

Formation of percolation path

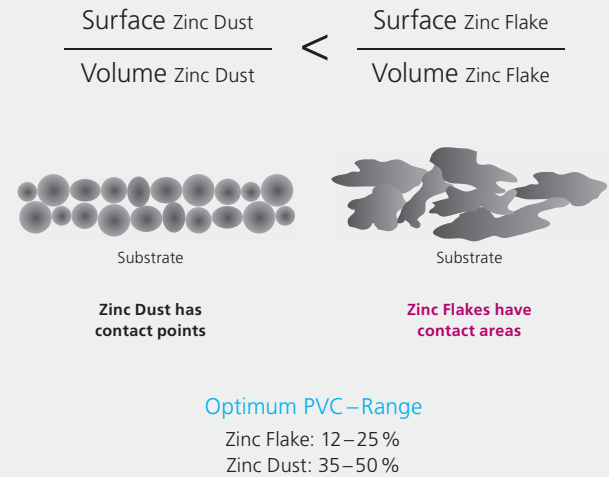
Necessary filler content depends on size and geometry



Optimum PVC depends on pigment shape

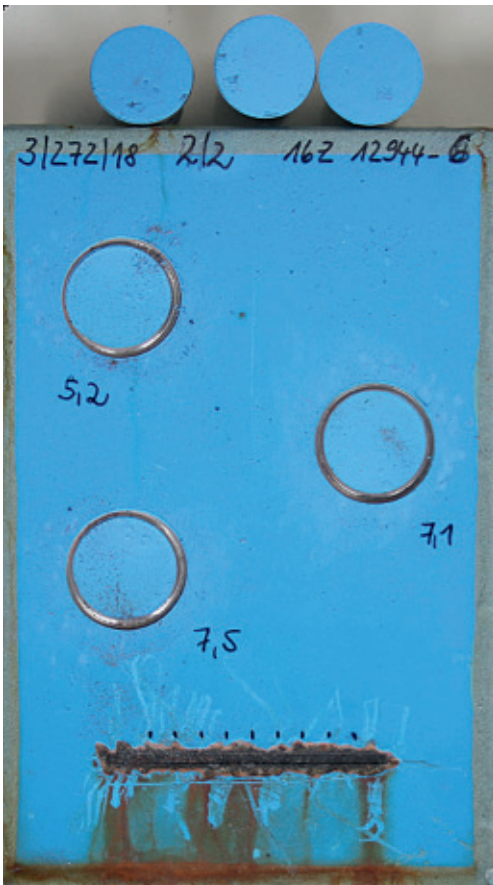
Statistics

- Probability of forming a conductive network increases with increasing surface-to volume ratio of the Zinc Particles at a given volume fraction of Zinc Particles



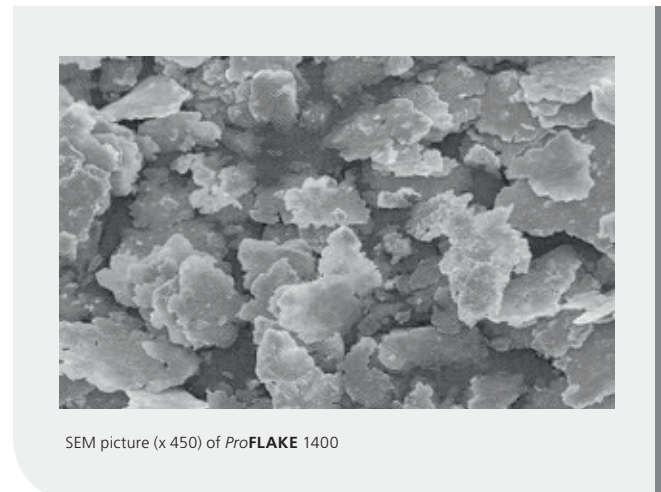
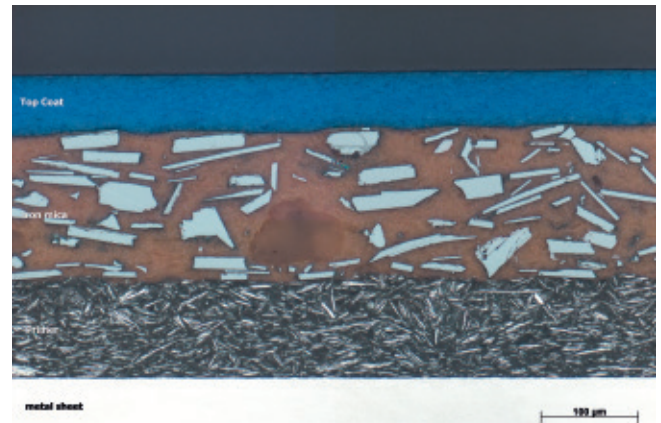
Anticorrosive Test

(According to DIN EN ISO 12944-6, Corrosion Category C5 VH, Evaluation by IKS Dresden)



Evaluation of creepage (1.4 mm) after 2,688 h cyclic aging test according to DIN EN ISO 12944-6

Cross cut through the tested three-layered paint build up





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