



SEM micrograph of nano-crystalline zinc phosphate platelets (hopeite)



Zinc phosphate platelets as re-dispersible powder



Application in protective paints



## ▶ LAB TECHNOLOGY

### ZINC PHOSPHATE PLATELETS AS ACTIVE HEAVY METAL-FREE CORROSION INHIBITORS FOR STEEL

#### AIM

- ▶ Combination of diffusion barrier (crystalline platelets) with active corrosion protection ability (chemical composition) in one type of pigment

#### CHARACTERISTICS

- ▶ Nano-crystalline zinc phosphate (e.g. hopeite) and mixed Zn-metal phosphate as platelet-type filler (aspect ratio: 10-30)
- ▶ Heavy metal-free (e.g. free of Cr-VI or Cr-III)
- ▶ Controlled chemical synthesis permitting to tailor the particles intrinsic composition and platelets morphology (aspect ratio)
- ▶ Improved active corrosion protection properties with controlled addition of foreign ions (e.g. Al, Mn,...), mixed Zn-metal phosphate
- ▶ Dispersible in various media (Epoxy resins, PU resins, water or solvent-based paints,...)
- ▶ Tailored surface modification for an improved compatibility and reactivity with various matrices
- ▶ Higher activity against corrosive media of single particle as a result of its high surface to volume ratio

#### APPLICATIONS

- ▶ Improvement of mild steel corrosion protection
- ▶ Range of applications: machine construction, automobile industry, marine industry, steel manufacture, energy industry
- ▶ Additive for corrosion protection in tribological systems

#### STAGE OF DEVELOPMENT

- ▶ Basic compositions optimized at the lab scale
- ▶ Adaptable to the requirements of new applications through R&D and technology transfer projects

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