

TECHNICAL DATA SHEET

Zn₃(PO₄)₂

Dispersion

Liquid, pre-dispersed zinc phosphate. A fine corrosion-inhibiting pigment for industrial formulation screening.

SUBSTANCE Zinc phosphate	PRODUCT FORM Liquid dispersion	PARTICLE SIZE 200–400 nm	CARRIER To be released
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01 Description

The Zinc Phosphate dispersion is a liquid, pre-dispersed zinc phosphate product with a reported dispersed-particle range of 200–400 nm. It is intended for industrial formulation screening where a fine corrosion-inhibiting pigment is required. Carrier, active zinc phosphate content, exact chemical identity and hydrate, particle-size statistic and measurement method must be released before external issue.

02 Fields of application

The waterborne-coating guidance in this document assumes that the carrier is water. Subject to that confirmation, priority applications are corrosion-protective primers on steel, including epoxy, acrylic, alkyd-emulsion and water-reducible alkyd systems. Zinc phosphate functions as an active inhibitive pigment; the general mechanism is precipitation and anodic passivation. A second development field is surface conditioning before zinc-phosphate conversion coating on steel, zinc-coated steel and aluminium, where dispersed zinc phosphate provides nuclei for subsequent phosphate-crystal formation. Thin-film and direct-to-metal use require confirmation of the full particle-size distribution, formulation compatibility and coating performance.

03 Recommended starting levels

APPLICATION / SYSTEM	STARTING LEVEL AND BASIS	PARTICLE FUNCTION AND EXPECTED SYSTEM RESPONSE
Waterborne corrosion-protective primers	3–10 wt% active zinc phosphate, based on total formulation; screen 3 / 5 / 7.5 / 10 wt%	FUNCTION Active inhibitive pigment for interfaces exposed to water and electrolyte. EXPECTED RESPONSE / CHECK Precipitation and anodic passivation can support corrosion protection. Verify salt-spray or cyclic-corrosion performance, EIS, adhesion, blistering, water uptake, flash rust, pinholes, viscosity and storage stability.
Thin-film / direct-to-metal primer screening	Use the 3–10 wt% active screening window; no dosage reduction is claimed from particle size alone	FUNCTION Fine inhibitive-pigment supply form with potential for more uniform incorporation. EXPECTED RESPONSE / CHECK Confirm D90 and coarse fraction, film smoothness, gloss or haze, sedimentation, redispersibility and corrosion performance at the intended dry-film thickness.
Surface conditioning before zinc-phosphate conversion coating	0,5 g/L active zinc phosphate in the working bath as an initial process-development target	FUNCTION Dispersed zinc phosphate particles provide nucleation sites for subsequent phosphate-crystal formation. EXPECTED RESPONSE / CHECK Verify bath stability, crystal refinement, coverage and coating weight on each substrate, plus adhesion and corrosion performance after the full conversion and coating process.

Numerical levels refer to active zinc phosphate. Product addition as supplied [%] = target active zinc phosphate [%] x 100 / released product zinc phosphate content [%]. For surface-conditioning baths: product addition [g/L] = target active zinc phosphate [g/L] / active mass fraction. These values are formulation starting points. Determine the optimum dosage by an application-related concentration ladder while keeping total pigment volume concentration and total solids comparable.

04 Technical data *

PROPERTY	VALUE / METHOD
Chemical identity / hydrate	Zinc phosphate; exact composition, hydrate and CAS/EC identifiers to be released
Product form / carrier	Liquid dispersion; appearance and carrier to be released
Zinc phosphate content / total solids	To be released ; test method and calculation basis to be stated
pH / conductivity	To be released ; method, dilution and temperature to be stated
Density / viscosity	To be released ; temperature, method and shear rate to be stated
Dispersed-particle size	Reported range: 200–400 nm ; statistic, weighting, method, sample preparation and coarse fraction to be released
Soluble salts / additive package	To be released : soluble zinc/phosphate, chloride, sulphate, dispersant or surface treatment and preservative
Storage stability / redispersibility	To be released ; sedimentation, redispersibility, freeze-thaw behaviour, test conditions and shelf life to be stated

*) Entries marked "To be released" are placeholders, not product values. Replace them with released nanoSaar data before external issue. The reported 200–400 nm range is the only current product-specific size information; it is not a primary-particle-size or nanomaterial claim. Typical values do not constitute specification limits unless agreed separately.

05 Processing instructions

Homogenize the container before use and add under controlled agitation. Calculate the as-supplied dosage from the released active zinc phosphate content. In waterborne coatings, first test pH and electrolyte compatibility with the binder and dispersant package; maintain constant total pigment volume concentration when comparing inhibitor levels. A ready dispersion may reduce grinding demand, but additional milling, dispersant adjustment or let-down addition must be selected from particle-size, viscosity and film-quality results. Check foam, flash rust, pinholes, sedimentation, redispersibility and storage stability. For surface-conditioning trials, dilute with deionized water and control bath chemistry, pH, water hardness and contamination according to the conversion process.

06 Packaging

Sample size: upon request
Commercial packaging: to be agreed; net weight according to order confirmation

07 Storage

Store in tightly closed original containers. Protect from contamination and extreme heat. For an aqueous grade, protect from freezing. Homogenize before use.
Storage temperature range and shelf life: to be released.

08 Labelling

Classification and labelling are stated in the current safety data sheet. This TDS does not replace the SDS.
Follow the handling and exposure-control measures specified in the SDS.

09 Special note

The stated starting levels do not constitute a product-performance specification. Improved corrosion protection, reduced dosage, thin-film suitability, reduced sedimentation and surface-conditioning performance must be demonstrated with this grade. The product is not presented for fertilizer, food-contact, pharmaceutical, dental or flame-retardant applications. Product positioning must be revised if the carrier or chemical identity differs from the assumptions used for the application screening.

10 – NOTES AND DISCLAIMER

The information in this document is provided in good faith and reflects the manufacturer's knowledge at the date of issue. It does not constitute a specification, guarantee or warranty. Product suitability for a particular formulation, process, substrate and intended use must be established by the user through appropriate testing. Nothing in this document relieves the user from complying with applicable legal, safety and regulatory requirements. nanoSaar Production GmbH may revise this document without prior notice.

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