

Product overview

Product description

ALKA 401 is a single-component zinc-phosphate alkyd primer for prepared steel. It provides the primer layer in compatible atmospheric coating systems and is suited to shop painting and maintenance work. The selected enamel or other approved finish completes the protective build.

Key advantages

- Zinc-phosphate pigmentation supports the primer's corrosion-control role.
- Fast-drying characteristics assist workshop coating sequences.
- Smooth matt primer finish provides a practical receiving layer.
- Single-pack application is convenient for fabricated steel and touch-up work.

Recommended uses

- Shop priming of fabricated steel.
- Machinery and equipment before compatible alkyd or synthetic enamels.
- General industrial maintenance in atmospheric service.
- Local primer repairs on correctly cleaned and prepared steel.

Product and system selection

Use this overview with the technical data, preparation, application and limitations in the following pages. Confirm the complete build with ALKA for the actual substrate and service conditions.

Product & system selection

Single-component, zinc-phosphate alkyd primer

Shop or maintenance priming of prepared steel in an approved atmospheric coating system.

Where this product fits

SYSTEM POSITION — CONCEPT ONLY	SELECTION / CONTROL
Weatherable finish, where specified	Colour/gloss and compatible recoat condition
Barrier / intermediate layer, where specified	Uniform film build and stripe-coat coverage
Primer on prepared metal	Substrate-specific adhesion and corrosion-control role

Specify the complete application

DECISION	SELECTION TO RECORD
Substrate	Exact substrate, condition, moisture and existing coating.
Duty	Traffic, weather, water, chemicals, temperature and cleaning as relevant.
Finish / interface	Required colour, sheen, texture and compatible adjacent layers.
Acceptance	Nominate the inspection, test method and release conditions before work.

Limits of use

Atmospheric primer; permanent immersion and aggressive chemical duty require a different approved system.

Technical data

Typical data and application conditions are listed below. Contact ALKA Technical Support for fields requiring confirmation before specification or use.

PROPERTY	VALUE / CONDITION
Appearance	Grey, matt
Volume solids	45 ± 2% in source
Specific gravity	1.40–1.55 in source
Nominal DFT	40–60 µm per source
Source coverage	7–9 m ² /L; compare with theoretical calculation for selected DFT
Drying at 25°C / 50% RH	Surface dry 20–30 minutes; hard dry 6–8 hours
Recoat / full cure	Minimum 8 hours / 5–7 days at source reference conditions
Thinning	Source spray 5–15%, brush 0–5%; exact approved thinner required
Pack	1, 4, 20 and 200 L
Storage / shelf life	12 months unopened at 5–35°C

Interpreting the data

Values depend on the stated temperature, humidity, film build, test method and substrate. Typical laboratory figures are not automatic project acceptance criteria. Changes to colour, thinner, aggregate, mix proportion or layer build can change performance.

Units and test basis

Keep mass and volume mixing ratios distinct. State whether solids are by mass or volume and whether thickness is WFT (wet film), DFT (dry film) or total system build. Coverage is theoretical unless an actual site yield is stated.

Substrate & work preparation

PREPARATION STAGE	REQUIRED APPROACH
Exposure and system	Define atmospheric, splash or immersion exposure and the desired finish. Nominate primer, intermediate and topcoat by actual product code; do not infer a corrosion category from generic resin chemistry.
Steel condition	Remove oil and grease, rust, scale and contamination to the approved specification. Assess soluble salts where relevant and record the selected cleanliness and surface profile.
Edges and details	Prepare welds, sharp edges, bolts and difficult geometry. Stripe-coat with the selected compatible material where the specification requires it.
Old coatings / other metals	Identify retained coating type and adhesion. Test compatibility; prepare galvanised steel, aluminium or stainless steel by their separately approved methods.
Environment	Record air/substrate temperature, humidity and dew point. Maintain the approved condensation margin and ventilation throughout application and cure.

Establish the application release point

The applicator and responsible technical reviewer should accept the substrate, repairs, environmental conditions, material identity and system schedule before work starts. Record the moisture method and readings, substrate/air temperatures, humidity and condensation assessment where relevant.

Materials and equipment

Check labels, component pairing, batch numbers, expiry and storage history. Provide suitable mixing, application and inspection equipment, clean containers and calibrated measuring tools. Keep contaminated tools and residues away from fresh material.

Representative trial

Where condition or compatibility is uncertain, trial the complete proposed preparation and coating sequence. Agree the sample location, cure time, appearance and adhesion assessment before extending the work.

Mixing & application

STEP	PRODUCT-SPECIFIC PROCEDURE
01	Degrease steel and prepare to the project abrasive-blast or maintenance-cleaning specification. Resolve rust, scale and soluble contamination before priming.
02	Stir settled pigment thoroughly. Apply to bare prepared steel promptly and stripe edges, welds and difficult areas as specified.
03	Control DFT at 40-60 µm rather than chasing coverage alone. Provide ventilation for solvent release and oxidative drying; excessive build can leave a soft film.
04	Overcoat with a proven compatible coating after the minimum interval and confirmed through-dry condition. Strong-solvent topcoats need specific compatibility approval.

EDGE / WELD COVERAGE / CONCEPT SECTION

Prepared metal

Stripe difficult geometry before full coat



Specified profile + continuous build + accepted DFT; no dimensions implied

Concept drawing only; no dimensions, tested build, product compatibility or engineering approval are implied. Follow the approved project details.

Continuity and stopping points

Plan work to natural breaks and maintain a consistent application method. Do not stretch material beyond the approved coverage. Check intermediate surfaces before covering them; remove contamination and rectify defects using an approved repair procedure.

Out-of-window or interrupted work

When the permitted interval is exceeded, or rain, dust, condensation or site damage affects the surface, assess the condition before continuing. Use the validated cleaning, abrasion, re-priming or repair method; an apparently dry surface is not proof of intercoat adhesion.

Quantity, cure & sequencing

Set the accepted consumption and coat count before ordering. Measure actual area, include surface-profile demand, repairs and losses, and round reactive material to complete matched kits.

WORKED EXAMPLE — ESTIMATE ONLY	CALCULATION
Illustration	50 µm DFT at 45% volume solids
Theoretical WFT	111.1 µm
Theoretical spread	9.00 m ² /L
100 m ² , one coat	11.11 L net; 12.22 L with an assumed 10% allowance
Practical yield	Reduced by roughness, stripe coats, transfer losses and retained material

Basis of the example

At nominal volume solids; application losses and surface profile reduce practical yield. The assumed area, coat count and 10% allowance are estimating choices, not independently validated ALKA specifications.

Source timing / release references

STAGE	TIME / CONDITION
Recoat / full cure	Minimum 8 hours / 5–7 days at source reference conditions

Plan around actual conditions

Temperature, humidity, ventilation, substrate absorption and thickness affect drying and cure. Pot life, open time, touch dry, overcoat time and service release describe different conditions. Record when reactive components are combined; do not extend working life with unapproved water or solvent.

Release to service

Use the technically approved schedule for the actual load or exposure. Chemical immersion, vehicle loading, water testing, stacking and washing may require different release points where those duties are specified. Do not infer readiness from surface appearance alone.

Inspection, safety & handover

HOLD POINT	RECORD / VERIFY
Before work	Accepted substrate and details; material/version; approved colour/build; environmental conditions and trial result.
During application	Component/tint batches; proportions; mixing and placement times; measured area, quantity and thickness; coat count and interruptions.
Before next layer	Surface condition; permitted interval; defects and repairs; primer/receiving-layer compatibility.
Before service	Cure conditions and elapsed time; final inspections; approved test results; repairs completed and rechecked.

Product-specific checks

- Check stripe coverage and DFT with calibrated equipment.
- Inspect runs, dry spray, misses, pinholes and intercoat contamination.
- Use continuity testing only for a specified lining duty and approved method.

Investigate defects before covering them

Softness or delayed drying calls for a review of identity, proportioning, conditions and thickness. Bubbles or pinholes call for a review of moisture, porosity, air entrainment and application rate. Loss of adhesion requires locating the failure plane and correcting preparation or interface problems. Isolate affected areas; do not conceal uncured or unsound material.

Safe handling and cleaning

Read the current SDS for the actual product and every component, thinner and cleaner. Use the specified ventilation, personal protection and site controls. Spray, abrasive preparation and confined-space work need competent planning. Do not assume water-based, low odour, cured appearance or high solids means non-hazardous.

Use only the product-approved cleaner before material cures; keep cleaning solvent separate from coating thinner. Collect residues and protect drains. Cured material normally needs an appropriate mechanical removal method; avoid damaging the sound substrate.

Maintenance and handover

Inspect coating damage, edge corrosion and drainage traps at suitable maintenance intervals. Clean and feather sound boundaries before repair, use the approved primer/finish sequence and restore the specified DFT. Repairs can differ in colour or sheen.

Retain the installed system, batch and application records, inspection results, repair details and agreed cleaning/reopening instructions. The approved TDS and current SDS should be available to the applicator and owner.