Technical Data Sheet

Carboxide All Purpose Primer Undercoat

High-Build Base Coat

Product Overview

A high-performance, solvent-borne, oil-based basecoat, formulated to seal, level, and prepare bare timber, prime & undercoat ferrous metals, and sound previously painted surfaces for interior and exterior finishing.

Key Benefits

- High-build properties fill wood grain and pits.
- Acts as a knot sealer substitute on most timber. For resin rich knots see below.
- Exceptional opacity hides dark previous colours.
- Versatile adhesion to metal, wood, and masonry.

Recommended Uses

Suitable For:	Not Suitable For:
• Bare steel • Cast iron • New timber • Masonry • Fencing • Aged, galvanised steel	• High-friction floors • Freshly galvanised steel • PVC • Domestic interior walls • Marine hulls – Below the water Line • Total immersion

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Finish & Appearance

- **Finish:** Matt
- **Sheen Level:** Very Low
- **Texture:** Smooth
- **Appearance:** High-opacity base coat.

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Coverage (Practical Guidance)

Coverage:	**Coverage depends on:**
• 11-12m^2 per litre per coat @ 90micron WFT. • Effectively hides surface imperfections. • Use a roller for flat timber panels. • Brush application ensures primer is worked into iron. • One coat is usually sufficient for undercoating.	• Timber grain porosity • Metal profile • Tool type • Ambient temperature • Application thickness

Always test on your substrate before full application.

SURFACE PREPARATION

1. Degreasing and Surface Cleaning

- **Trade Method:** Thoroughly degrease the entire substrate prior to sanding using an industrial solvent wash or wax and grease remover in accordance with BS EN ISO 12944-4 standards. This ensures oils, manufacturing lubricants, and surface chemicals are not driven deeper into the substrate during mechanical abrasion.

- **DIY Method:** Clean all surfaces thoroughly with methylated spirits, white spirit, or a heavy-duty household degreaser. Ensure all grease, wax, polish, and household grime are entirely removed. Allow to dry completely before proceeding.

2. Metal Substrate Preparation (Steel, Iron, and Non-Ferrous Metals)

- **Trade Method:** Remove all heavy rust, mill scale, and failing previous coatings via abrasive grit blasting to a minimum visual cleanliness standard of Sa 2½ in accordance with BS EN ISO 8501-1. For localised areas or where blasting is restricted, use mechanical power tool cleaning (such as angle grinders, needle guns, or power wire brushes) to a minimum standard of St 3 in accordance with BS EN ISO 8501-1. Ensure a sharp, clean profile is achieved.

- **DIY Method:** Remove loose rust, flaking paint, and corrosion using a stiff wire brush, hand scrapers, or a wire cup brush attachment on a power drill. Sand the remaining intact bare metal with 120 to 180-grit abrasive paper to create a mechanical key for primer adhesion.

3. Wood and Timber Substrate Preparation

- **Trade and DIY Method:** Ensure all structural timber is sound, clean, and free from fungal decay. Sand bare timber surfaces smooth, always working in the direction of the wood grain to avoid cross-grain scratching.

- **Abrasive Selection:** For rough-sawn timber, start with an 80-grit abrasive paper, followed by 120-grit. For pre-planned, smooth joinery or dressed timber, use 120 to 180-grit paper to open up the wood fibres for optimal primer penetration. Resin-rich knots or oily hardwoods should be wiped down with white spirit or methylated spirits immediately before priming to remove natural surface oils.

4. Treatment of Resin-Rich Knots

- **Trade Method:** Isolate all knots, resinous streaks, and sap veins in softwood timber using Palatine Carboxide Aluminium Wood Primer. Apply two coats of knotting sealer directly to the bare wood knots, allowing proper drying between coats, before applying the primer undercoat. This chemically blocks resinous exudation and prevents staining or discolouration of the final topcoat.

- **DIY Method:** Seal all visible wood knots and dark sap lines with a proprietary knotting solution using a small brush. Ensure the sealer covers the knot completely and extends slightly onto the surrounding wood. Allow to dry hard to touch before priming to prevent natural wood oils from bleeding through the finished paintwork.

5. Previously Painted Surfaces

- **Trade Method:** Conduct cross-hatch adhesion testing in accordance with BS EN ISO 2409 on sound existing coatings to verify structural integrity. Completely strip back any failing, flaking, or poorly adhered paint films to a sound substrate using mechanical stripping or approved chemical paint removers. Abrade remaining intact glossy finishes using fine abrasive pads or media to create a uniform matt finish for inter-coat adhesion.

- **DIY Method:** Scrape away all loose, bubbling, or peeling old paint back to a firm edge. Sand the edges of the remaining paint flat using a medium-to-fine sandpaper (120-grit) to smooth out the transition zone (feather-edging). Lightly sand all existing glossy or semi-gloss paint surfaces with 240-grit paper to remove the shine, ensuring the new primer undercoat can grip the surface.

6. Dust Removal and Debris Clearance

- **Trade Method:** Vacuum the entire area or blow down the surface using clean, dry, compressed air. Wipe the substrate with a high-quality tack cloth to collect microscopic particulate matter.

- **DIY Method:** Thoroughly brush away all bulk sawdust, rust flakes, and sanding debris. Wipe down the entire surface using a clean, lint-free cloth lightly dampened with water (for wood) or white spirit (for metal). Allow any moisture from a damp cloth to evaporate entirely before applying the coating.

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7. Moisture Control and Final Inspection

- **Trade Method:** Test timber substrates using a calibrated moisture meter; the moisture content must be below 15 percent before application. Metal surfaces must be fully dry, and the substrate temperature must remain at least 3 degrees C above the current dew point to prevent condensation.

- **DIY Method:** Ensure the surface is completely dry to the touch and bone dry throughout. Do not prime outdoors if overnight rain, heavy fog, or morning dew has left dampness on the substrate, or if rain is expected within 6 to 8 hours of application.

8. Recoating and Denibbing (Post-Primer Sanding)

- **Trade Method:** Once the primer undercoat has fully cured (minimum 16 hours), inspect the film for surface defects, raised grain, or airborne dust inclusions. Lightly denib the entire surface using a fine, non-woven abrasive pad or a 320 to 400-grit dry lubrication paper. Vacuum all dust and wipe with a clean tack rag to prepare a perfectly flat, uniform base for subsequent topcoats.

- **DIY Method:** Allow the primer undercoat to dry overnight. If the grain of the wood feels rough or furry to the touch, or if tiny dust spots are trapped in the paint, lightly sand the primed surface using a fine 240 or 320-grit sandpaper. Avoid heavy pressure to prevent sanding through the primer layer at edges and corners. Wipe away the fine dust with a dry cloth or tack rag before applying the final paint coats.

Top 10 Substrates

Top substrates	Suitable?	Minimum prep (short)	Prime / seal?
Bare Steel	Yes	Wire brush / Degrease	No (Self-Priming)
New Timber	Yes	Sand smooth	No
Cast Iron	Yes	Remove scale	No
Aged Galvanized	Yes	Degrease	No
Masonry	Yes	Dust off	No
Hardwood	Yes	Degrease / Sand	No
Plywood	Yes	Light sand	No
Wrought Iron	Yes	Wire brush	No
Mirror Steel	No	Grit blast/Coarse sand	Requires Physical Key
Fresh Plaster	No	Use water-based primer	Do Not Apply

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APPLICATION INSTRUCTIONS

1. Agitation and Mixing

- **Stirring Requirements:** Stir thoroughly before use using a mechanical power mixer, such as an air or electric drill fitted with an anti-settling paint paddle.
- **Method:** Mix at a low speed to prevent air entrainment. Hand stirring with a flat wooden paddle is only acceptable for container volumes under 5 litres.
- **Redispersal:** Ensure all dense, settled pigments at the bottom of the container are completely broken up and redispersed into a smooth, homogenous blend.
- **In-Application Agitation:** Shake or stir the paint pot briefly every 30 minutes during extended application sessions to maintain uniformity and prevent heavy components from dropping out.

2. Environmental and Substrate Conditions

Do not apply this product if conditions fall outside the following parameters:

- **Substrate and Air Temperature:** Maintain between 5 degrees C and 35 degrees C (41 degrees F to 95 degrees F).
- **Relative Humidity (RH):** Must be below 85 percent.
- **Dew Point Warning:** The substrate temperature must be at least 3 degrees C (5 degrees F) above the dew point. This primer is highly sensitive to moisture condensation during the initial curing phase; moisture trapped underneath will cause micro-blistering.
- **Weather Precautions:** Do not apply outdoors if rain, fog, or heavy frost is imminent within 6 to 8 hours.

3. Thinning and Clean Up

- **Thinning:** Typically supplied ready for use via brush or roller. If thinning is required for workability in cold weather or for atomisation in spray equipment, use White Spirit. Do not exceed 10 percent to 10 -15 percent by volume. Over-thinning will severely drop the solids level, causing sagging, wiping out opacity, and reducing rust protection.
- **Clean Up:** Clean all tools, brushes, and spray lines immediately after use with White Spirit or Gun Wash

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4. Application Methods and Equipment Guideline

- **Brush and Roller:** Suitable for stripe coating of weld seams, rivets, sharp edges, and minor touch-ups. This formulation offers exceptional wet-edge time and brushability, making brush application excellent for working the primer deeply into the micro-cavities of the steel. Use high-quality natural bristle or solvent-resistant synthetic blend filaments. For rollers, use a short-to-medium nap solvent-resistant woven sleeve (6mm to 10mm). Avoid rapid rolling, which creates micro-voids in the film.
- **Conventional Spray:** Fluid tip orifice of 1.4 mm to 1.8 mm. Atomizing pressure of 3.0 to 4.0 bar (45 to 60 psi). Thinning may require 5 percent to 10 percent White Spirit to lower viscosity.
- **Airless Spray:** Recommended for optimum dry film thickness uniformity. Tip size range of 0.015 inch to 0.019 inch (e.g., 517 or 519 tip). Output pressure of 150 to 180 bar (2100 to 2600 psi). Ensure pump and gun mesh filters are clean (typically 60 mesh) to accommodate the dense pigment particulates.

5. Film Thickness Control and Drying

Monitor the coating thickness closely during application using a Wet Film Thickness (WFT) comb:

- **Target Wet Film Thickness (WFT):** 75 to 100 microns (~3.0 to 4.0 mils).
- **Target Dry Film Thickness (DFT):** 40 to 50 microns (~1.6 to 2.0 mils).
- **Theoretical Coverage:** 11 square metres per litre (assuming roughly 50 percent Volume Solids; practical coverage will vary based on steel profile and wastage).
- **Drying Profile:** This product dries slowly via oxidation (absorbing oxygen from the air). At 20 degrees C and 50 percent RH:
    - Touch Dry: 4 to 6 hours.
    - Hard Dry / Recoat Window: 16 to 24 hours minimum. Do not apply a topcoat early, as trapped solvent will cause the base to remain soft and fail chemically.

STORAGE AND SHELF LIFE

Storage Conditions

Store the product in its original, unopened containers in a dry, well-ventilated, secure area. Keep away from direct sunlight, overhead heat sources, sparks, open flames, and frost. Ideal storage temperatures should be maintained between 5 degrees C and 30 degrees C (41 degrees F to 86 degrees F).

Shelf Life

The shelf life of this product is 24 months from the date of manufacture when stored in the original, unopened containers under the recommended storage conditions.

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Drying & Recoat Times (20°C)

Stage	Approximate Time
Touch Dry	3 hrs
Hard Dry	8 hrs
Recoat	16 hrs
Full Cure	7 days

Drying times increase in cooler or humid conditions.

System Recommendations in Summary

- Thin approx.10% with White Spirit for spray.
- Clean all equipment with White Spirit.
- Topcoat with a variety of suitable products from Palatine Paints for best results.
- Apply 2 coats for maximum rust protection.
- Stir until the product is completely uniform.

Limitations & Conditions in Summary

- Avoid rain during curing
- Ensure solvent ventilation
- Minimum application temperature: 10°C

Technical Product Data in Summary

- **Pack Sizes:** 0.5L,1L, 2.5L, 5L, 10L, 20L
- **VOC:** 320 g/L
- **Volume Solids:** 58 ± 2% - Varies with colour
- **Specific Gravity:** 1.50
- **Flash Point:** 38°C (closed cup)
- **Colour Range:** Grey, Red, White, Black.

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Storage & Shelf Life

- 24 months shelf life - Unopened
- Cool dry area
- Secure lid tightly
- Protect from extreme heat

Health & Safety

- Refer to Safety Data Sheet (SDS) before use
- Wear gloves and eye protection
- Use suitable respiratory protection when spraying
- Ensure good ventilation during application

Transport Information

- **UN Number:** 1263
- **Packing Group:** III
- **Hazard Class:** 3

Legal Disclaimer

Information is given in good faith based on current knowledge and experience. Users must determine suitability for their specific application. No liability is accepted for improper use or inadequate surface preparation.