

ETCH PRIMERS

WHAT ARE ETCH PRIMERS?

Etch Primers are generally single pack metal primers formulated with resins to adhere to metal surfaces. The active ingredient in the etch primer formulation is **phosphoric acid**; the acid **etches** the metal surface to improve adhesion. Etch primers usually also contain zinc phosphate, an anti-corrosion pigment for steel surfaces.

An important point to note is that etch primers are thin film coatings and therefore should be applied at around 10–15 µm dry film thickness.

WHEN SHOULD THEY BE USED?

Etch Primers are intended for use as primers on bare ferrous and non-ferrous metal surfaces in relatively low corrosivity environments. Examples of the types of materials on which these products are commonly used are light-weight tubing or thin sheet metal surfaces that cannot be prepared by abrasive blast cleaning. In such cases the combination hand/power tool abrasion and acid present in the primer generally provides sufficient adhesion to allow the use of thin film two-pack finishes.

Severely corroded surfaces or those that can be prepared by abrasive blast cleaning would be better served by a surface-tolerant or conventional two-pack epoxy primer, as these products offer better long term corrosion protection than etch primers.

ADVANTAGES

The advantages of etch primers over other metal primers are as follows:

- Provides excellent adhesion over a variety of different metals.
- Can be applied with minimal preparation (clean, degrease and abrade, refer to data sheets).
- Rapid cure, allowing overcoating with thin film topcoats in substantially less than 1 hour.
- Zinc phosphate pigmentation offers some degree of inhibitive corrosion protection.

WHEN SHOULD THEY NOT BE USED?

Etch primers offer inadequate corrosion protection in corrosive environments such as near the coast or around swimming pools. In such cases, a zinc-rich primer and high build barrier coat should be used as part of a heavy-duty, two-pack protective coating system.

Etch primers work by the reaction of acid with the metal surface. Therefore, they generally have little or no effect on non-metals and previously painted surfaces (including pre-coated sheet steel such as Colorbond®). In fact, the phosphoric acid present in the etch primer may interfere with the adhesion of subsequent coatings, causing delamination.



Whilst the etch primer should be sprayed to ensure a thin, even film, the topcoat can be brushed.



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Etch primers must not be applied to timber or MDF, as the acid may attack the timber fibres.

PRECAUTIONS

These precautions are typical of all single-pack etch primers:

- Etch primers are intended for use in **thin film systems** and so **cannot** be topcoated with high build barrier coats.
- Etch primers cannot provide the **level of corrosion protection** achievable with high build protective coating systems.
- **Higher** than recommended film builds (usually around 10 µm will **risk delamination** of the coating).
- Etch primers do not flow out easily, so brush and roller application are suitable for small areas only. Etch primers **should be sprayed** to ensure a thin and even film build.

IN SUMMARY

Etch primers are convenient for the priming of all types of metal that require a very quick turn-around time. They only require a very thin coat in order to etch the metal surface and create a tenacious bond. The fast dry characteristics allow topcoats to be applied shortly after primer application.

The zinc phosphate pigment in etch primers offers some degree of corrosion protection in mild environments.

The thin film limits application to metals in low corrosivity environments and is unsuitable for topcoating with heavy duty, high film build intermediates and topcoats.

Etch primers are ineffective on previously coated or non-metallic surfaces. The acid content may adversely affect timber and timber composites.

Overall, etch primers provide a quick and handy solution for priming metals in mild environments.



Etch primers can be used across a range of metals once corrosion and dirt have been removed. Ensure dissimilar metals are isolated from each other to prevent corrosion.



Once the etch primer has dried, it is ready to paint.

For more information, please contact the Dulux Protective Coatings Technical Consultant in your state.