Resene

Resene Paints Limited

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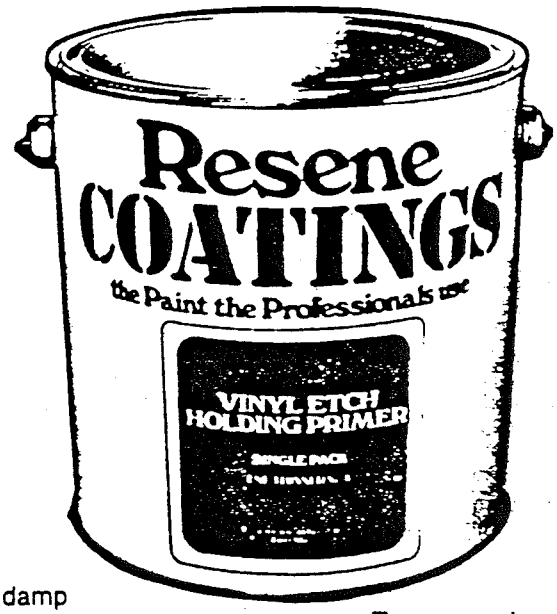
ETCH PRIMERS

Etch (or wash) primers were first developed in America during the Second World War. The need to be able to quickly refurbish ships with limited dry docking facilities spawned the need for a fast drying primer which was tolerant of application over damp surfaces. Etch primers, a mixture of zinc chromate, phosphoric acid and polyvinyl butyral, was the answer to the need. They dried very quickly; could be overcoated with standard paints, and developed a remarkable adhesion by a series of complex interactions which are not fully understood even today. They were two-pack materials in which the acid component was added just before mixing, applied in very thin films, and had a characteristic translucent appearance.



It can be seen that one of the major uses of etch primers today (the pretreatment of "difficult" non-ferrous metals) was not even considered in the development of the product.

The major drawback of this type of product is water sensitivity (even though it can be applied to damp surfaces), and premature failure can occur through exposure to rain, dew, or even high humidity in the early life of the film. It is also sensitive to U.V. light. The product, as mentioned, is a two-pack system with a limited pot life at the expiry of which it is unable to achieve adhesion. Unfortunately, this change occurs without any other physical signs and it is possible to carry on applying the material unknowingly past it's useful pot-life.

Clearly the usefulness of this type of product could be increased if these shortcomings were overcome. The water and U.V. resistance were up-graded by modifications with phenolic resins and iron oxides and this type of formulation has found a lot of use. The appearance is very different from the original "wash" primer and its resistance allowed it to be used as a "Shop" or "holding" primer where it may have to take some weathering before overcoating. This type have found use as primers for galvanised iron roofs because they can withstand the vagaries of the weather which can often delay the application of the top coats.

The next step, formulating this type of product into a stable one-pack coating, required some sophisticated chemistry. It involves temporarily complexing the acid component whilst it is in the can, and releasing it when solvent evaporation occurs during drying. Resene's recently released product Single Pack Vinyl Etch Holding Primer represents these developments and Data Sheet R5a describes some of the remarkable properties of the product.

To summarize, the improvements this type of product has over the original etch primers are:—

1. Improved water and weather resistance allowing delayed topcoating schedules.
2. No onsite metering of individual components thus removing a major possibility of error.
3. No finite pot-life removing the danger of applying "spent" material.
4. Higher film builds with consequent improvements in corrosion resistance.

Data sheets enclosed.

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