



DID YOU KNOW?

- hints and tips from the Technical Department

Acrylic Enamels

Acrylic Enamels have been the “holy grail” of paint formulating.

Since the first attempt by British Imperial Paints Ltd. with B.I.P. Hi-Tone, a water based high gloss vinyl interior enamel released in the mid 1970's, paint companies in New Zealand have been trying to provide the market with a waterborne paint that can replace the environmentally unfriendly, high VOC, high odour alkyd enamels for use in service areas, where high water resistance is required, and on trim, where hard wear and good block resistance is needed.

Water borne paints consist of emulsified droplets of resin that have to coalesce together to achieve a uniform film. This has meant that formulators have struggled to achieve good flow and high gloss.

Recent developments in acrylic emulsion binder and thickener technology have brought the dream of acrylic enamels closer.

New technology binders have room temperature cross-linking characteristics, which gives block resistance and hard wear, and have been formulated with a minimum of surfactants, which gives good water resistance. These binders are by nature quite hydrophobic (water hating), which assists in their serviceability in areas such as bathrooms and kitchens where the steam generated can lead to problems with surfactant leaching.

When these binders are coupled with new technology associative thickeners, gloss and flow approaching levels only previously seen in oil based paints can be achieved. These associative thickeners link the droplets of binder into a matrix which holds the water in the system in place. This matrix takes some time to form, and any additional water introduced into the system will initially exist in a separate phase, and has the potential to extract hydrophilic (water loving) components from the paint, such as the oxide pigments used to give the popular off-white paint shades.

Under good drying conditions, i.e. warm temperatures, moderate humidity and good airflow, the fast water release character of acrylic enamel paints, a consequence of their low surfactant hydrophobic nature, ensures that this extraction does not lead to any noticeable effect when different methods of application, e.g. brush and roller, are used. However in the cooler temperatures and higher humidity prevailing during winter, problems can be encountered with picture framing as the recently added water floats to the surface of the paint bringing with it the oxide pigments prevalent in the popular off-white shades.

To avoid picture framing problems in Taubmans UltraProof, an acrylic enamel formulated at the cutting edge of waterborne enamel technology, it is essential that the following rules are followed;

- Only use short nap (6-8mm) polyester or proprietary acrylic enamel roller sleeves.
- **DO NOT THIN ULTRAPROOF!** UltraProof is formulated to be ready for use. The addition of water just prior to use introduces ‘unbound’ free water into the associative thickener matrix, leading to extraction of hydrophilic paint components.
- Ensure all equipment used is dry. Wet, or even damp, brushes and rollers can extract hydrophilic components from the paint giving picture framing problems.
- Paint, if possible, in warm rooms with low humidity and good airflow.



For technical advice and assistance telephone
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