

T. I. P # 19

Overcoating and Decorating Vinyl Film with Paints, Printing Inks, and Clear Top Coatings

PVC film used in the graphics industry is soft, slightly "oily" and susceptible to damage by the solvents found in many paints, printing inks or clear top coatings. Two rules of thumb to remember are to decorate with "softer" type resins and keep wet-solvent-contact-time to a minimum.

Soft Resins

- Vinyl or vinyl-modified inks and paints stick well to vinyl film. Vinyl-modified coatings also resist cracking and do not become brittle when the underlying vinyl expands and contracts due to changing environmental conditions. Softer coatings also do not delaminate as readily if plasticizers in the film become migratory.
- You cannot depend on solvent to make or maintain good anchorage with vinyl facestocks. It is better to select compatible resin systems for a given application. For example, certain water based sign enamels will adhere well to vinyl films and banners.

Hard Resins

- Hard overcoats, such as varnishes and lacquers, are not recommended for vinyl because they expand and contract at different rates and to a greater or lesser degree than the vinyl they cover. This difference eventually can cause crazing, cracking and lifting of the overcoat. The level of incompatibility between overcoat and vinyl is also driven by the level of plasticizer migration from the graphic film. Calendered films will tend to pose a greater problem than cast films.

Solvent Related Issues

Many well meaning sign writers, using solvent-based clear coats and varnishes as a protective layer actually harm the film by the resulting solvent attack that occurs to both the film and adhesive coating. To minimize this effect:

- Use as thin a coating as possible on each over-coat pass. This reduces "wet solvent" time on the film. If a thick overcoating is desired use two light coatings rather than one heavy layer.
- Use the newer generations of water-based top coatings which do not effect the vinyl as negatively as solvent-based types.

NOTE: Manufacturers of cast or calendered vinyl films make durability claims on the basis of "un-coated" products.