

In many applications for pressure sensitive graphics, the print may need protection from exposure to ultra-violet light, abrasion, or to satisfy a need for a consistent surface finish. Additionally, inks that are based primarily on dyes will fade quickly with sun exposure and will require protection to extend the life of the inks. The print service provider (PSP) has a choice of applying an overlaminate or a clear coating to provide this protection.

### **CLEAR COATING A GRAPHIC**

To offer protection for a printed graphic, a clear coating can be used. This process involves using a clear liquid, such as an ink or paint, and applying it over the graphic so when dry the coating is clear and does not distort the graphic image. A variety of formulations are available such as a typical solvent clear paint available in a spray can, automotive grade clear coat spray paint, clear screen applied inks that are solvent or UV curable and water based or UV curable flexographic inks can be applied to a graphic image. In flexographic or offset printing processes a clear coating may be applied in line with printing of the graphic image. When digitally printing a graphic, clear coating is usually a secondary process.

### **LIQUID CLEAR COATINGS OFFER ADVANTAGES IN CERTAIN APPLICATIONS:**

- Small individual graphic images
- Application to complex curvature substrates
- Application to polyester fabrics
- Helmets, Gas tanks, Recreational Equipment
- Short term temporary point of purchase decals

In these types of applications, the thin clear coating can help maintain the flexibility of the graphic to conform to and bond to irregular shapes.

### **KEYS TO USING A CLEAR COATING**

You must select a clear coating formulation that is compatible with both the inks and substrate on which the graphic is printed.

#### **Process the clear coating as directed by the manufacturer.**

- All clear coatings must be completely dry and or cured before application. A clear coating containing solvent or uncured resin will result in premature graphic edge lift or delamination and solvents will migrate into to the attachment adhesive and compromise the bond of the graphic to the application substrate.
- Be sure the chemistry of the clear coating is compatible with the graphic media. A UV curable clear coating may detract from the flexibility of a vinyl print media making removal of the graphic difficult because the media will lose flexibility and break into small pieces at removal time.

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## **OVERLAMINATION (FILMS)**

Graphic protection may also be accomplished by applying a clear pressure sensitive film to a graphic image. Typical clear overlaminating films are polyester (PET), polycarbonate (PC), acrylic, polypropylene (PP) and vinyl (PVC), of a variety of types (usually flexible). Films are available in a variety of thicknesses from .5 mils to 12 mils and in gloss ranges from matte to high gloss. All overlaminating films will have a pressure sensitive adhesive to bond to the graphic. Generally you will find many general purpose pressure sensitive adhesives designed for most overlaminate applications. However, if the application needs a special physical property such as high temperature resistance, overlaminates with different types of adhesives are available in GF portfolio that can provide that type performance.

## **OVERLAMINATING FILM ADVANTAGES**

***Overlay films are ideal for large format graphics and offer these advantages:***

- Application to relatively flat smooth surfaces.
- Ease and speed of overlaminate application as compared to liquid clear coating application and drying.
- Wide choice of film types and thickness to meet any application requirement.

***Excellent long term exterior durability and the following benefits:***

- Overlaminating films are typically thicker than a clear coating offering more protection, especially from UV radiation.
- Ability to choose an overlaminating film with the same chemistry and physical properties as the print media to improve long term compatibility.
- Uniform smooth finish with consistent surface gloss.
- Premium clear calendared vinyl and cast vinyl overlaminating films can offer up to five years exterior protection for the graphic.

## **KEYS TO USING AN OVERLAMINATING FILM**

- Use of an automated laminator, with trained personnel will give superior results when compared to manually applied overlaminating films.
- Correct laminating pressure is required to prevent edge curl and possible delamination of the graphic upon application.
- If the print surface of the graphic is rough, a slight amount of heat, up to 100° F., may be required to flow the adhesive into the rough surface to produce a graphic without silvering.
- When possible, match the chemistry of the overlaminating film with the print media.
- Excellent choice for exterior wrap applications whether it is automotive or building.

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## **RECOMMENDATIONS FOR EITHER CLEAR COATING OR FILM OVERLAMINATION**

When applying either a liquid clear coating or overlaminating film to a printed graphic you must be sure the inks are thoroughly dry or cured before application. Follow all ink manufacturer's requirements for drying and add on 24 hours if drying at room temperature. UV cured inks must also be correctly cured before clear coating or overlamination. Be sure all inks are dried/cured correctly when printing dark colors or areas of heavy ink saturation. Improperly dried or cured inks will cause the graphic to edge lift, curl, or possibly delaminate upon application. This type of failure can occur with exterior exposure and is dependent on sun light intensity, but edge curl can also be observed on interior applications where inks have been drastically under dried or under cured.

There are many instances where a graphic needs protection. The choice of how that is accomplished is made by the signmaker, graphic designer, or ultimately the customer. General Formulations produces a wide range of pressure sensitive overlaminating films that can offer the protection a customer will need for their application. General Formulations also produces a complete line of print media for every application. However, given the volume of possible liquid laminates in combination with all possible print media with different ink chemistries it is impossible for General Formulations to make specific liquid clear coating recommendations for our print media, as that is not a product we manufacture. The signmaker or printer will have to test their specific combination of print media/liquid clear coating to assure they are compatible for their application. If you have further questions regarding clear coating or overlamination of your graphic, contact your General Formulations Customer Service Representative at 800-253-3664.