

# MASTERING MOUNTING

## Laminating Basics Polyester vs. Vinyl

by Chris A. Paschke, CPF



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**D**uring lectures, workshops and presentations I am occasionally asked questions which illustrate the confusion surrounding laminating principles, materials and the films themselves. In my "Laminating Basics" articles, I hope to address the various materials and applications for general laminating of vinyl films that are developed for use within the framing industry.

In the April 1993 "Laminating Basics: Oversized Art" I discussed the laminating of an oversized print, one basically larger than 32" x 40", and the difficult dealings with release paper removal and laminating preparation for a project of that size. This month I hope to clarify some basic "laminating lingo" and point out the differences between film developed for the audio-visual (AV) market and that of the framing market.

### Encapsulation

Enclosing or sealing an item between two sheets of clear film is known as "encapsulation". Most often a request concerning lamination services (ie: "Do you do laminating?") by a potential customer refers to encapsulation. The conservation method of encapsulation is a refined process designed to protect documents from outside elements. It involves the use of two sheets of 3.5mm polyethylene polyester film and acid-free tape to seal the item from the elements, therefore retard-

ing deterioration. Unlike the conservation approach, which is totally reversible, "laminating encapsulation" relates to the use of *permanently* fusing laminating film to both sides of a paper or document using heat-set methods.

Many companies have recently released affordable "office laminators" or small portable desk top machines that use rollers to permanently heat seal thin polyester film to both sides of a document for long term protection. These machines are available to seal anything from luggage tags and ID cards to 8½" x 11" papers (photo 1). Plastic coated menus are also encapsulated, but because of their larger size are most likely created on a roller laminator.

### Roller Laminators

The entire "framing" encapsulation process, or two-sided permanent lamination, involves the use of non-breathable polyester films. Since these films do not breathe, they were originally designated for use with roller laminators designed to squeeze the air from between the layers as heated rollers applied pressure and fused the film sheets together. They were developed for specialized use within schools, libraries, print shops, graphics and reprographics houses, but even without the roller machines these films may be adapted for use within a framer's heat press.

Polyester films have an adhesive

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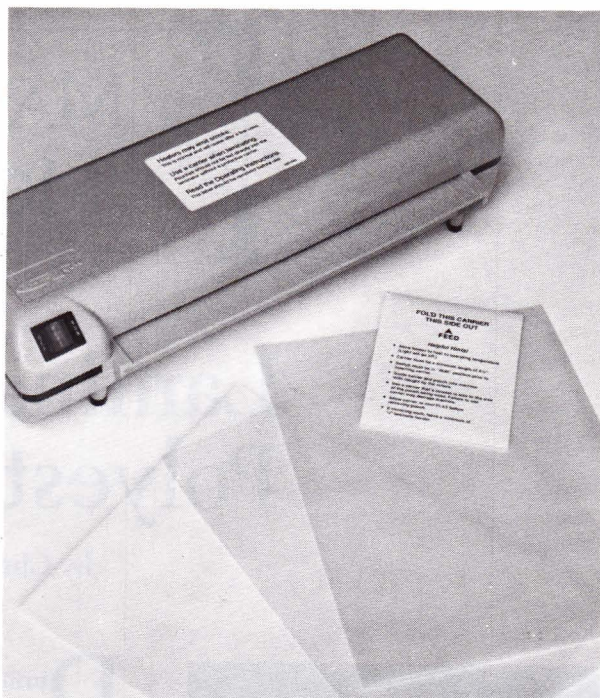
side which can be identified by its dull appearance (photo 2). They are not tacky to the touch, do not have a release paper backing and therefore do not fall into the "repositionable" category as do the vinyl films used in my April article.

## Polyester Films

The polyester films developed for encapsulation, such as Seal-Lamin, were not designed for use in the framing industry. They were originally developed in the early 60s for the "protection" of paper rather than to make paper "look good". Films are available in a number of varying thicknesses: the 1.5mm film differs in composition from the 2, 5, 10 and 15mm thicknesses in adhesive, application and designated use.

The thinner 1.5mm polyester is the more inexpensive, economical grade of film designed to be used with paper and ink. The low density polyethylene adhesive requires a

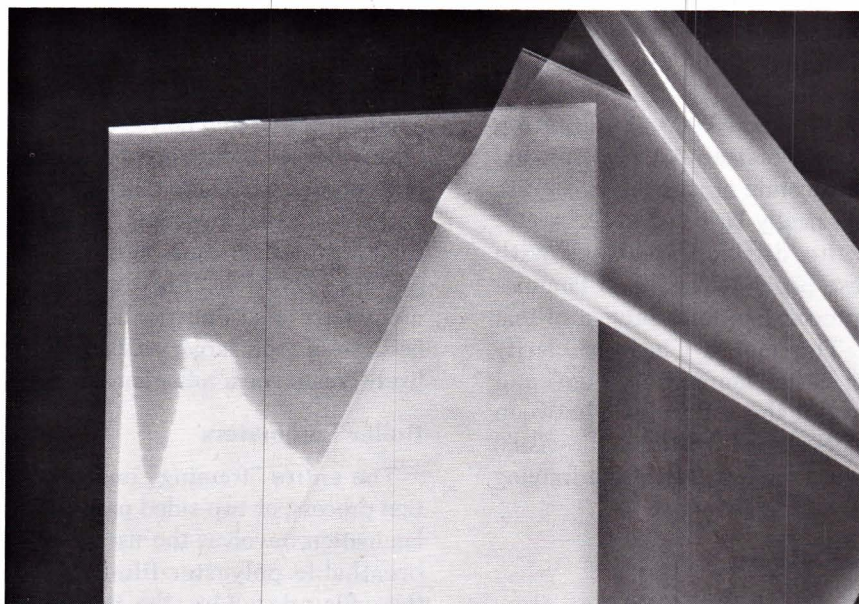
**Photo 1.** There are many office laminators available for tags of 4" to 8½" x 11" standard paper size. The clear sheets are non-tacky polyester gloss which must be inserted using a "carrier" or release paper folder to prevent the film from melting to the heated rollers inside.



relatively high mounting temperature of 230°F-275°F. Since the adhesive will not fuse to photographic emulsion it is restricted to use on non-photographic papers only. It can be written on, is water repellent, durable and comes in gloss and matte finishes.

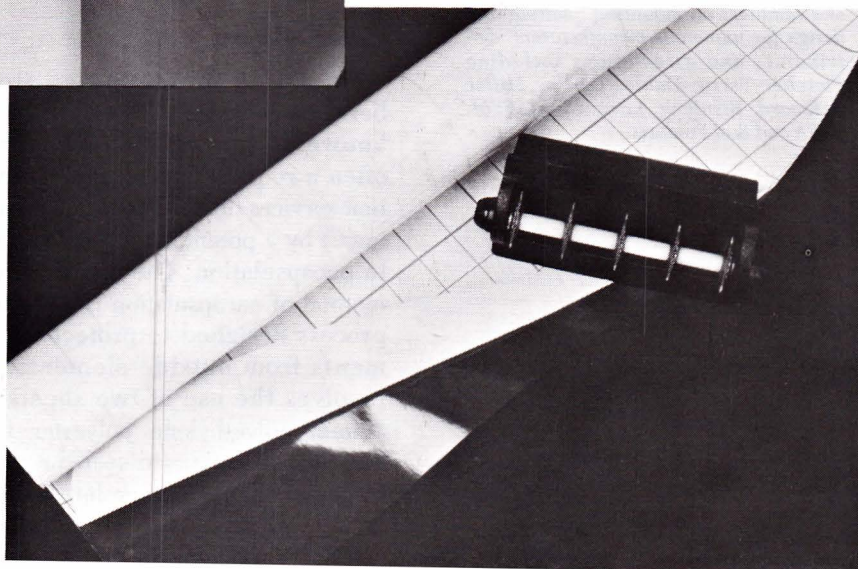
The thicker films (2, 5, 10, 20mm) are considered a more commercial grade designed for use with photographs, toner copiers and other special applications. The adhesive is a modified copolymer which sets at a lower mounting temperature of 220°F-240°F, which is why it is more "photo friendly".

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**Photo 2.** The polyester film shown will result in a glossy appearance (surface on left). The adhesive side is identified by the duller finish (on the right). Note the upper right hand corner which illustrates the natural tendency of the film to roll up.

**Photo 3.** The gridded release paper backing is always found on the back of vinyl laminating films. Whether pre-cut, rolled or pre-perforated, the paper backing is needed to protect the tacky repositionable adhesive which will mount the film. The small 5-wheel tool on the right is a perforator.





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The thicker films work well for free standing displays, placemats, ID cards and menus. Keep in mind that with two-sided encapsulation the available mm thicknesses will be doubled for the actual end product film thickness to 4, 10, 20 and 30mm.

Encapsulation within a heat press is possible but often frustrating. Polyester films were not developed for this particular application. Additional care must be taken; these films are very slippery and readily react to heat by tightly curling up (photo 2, again), making them difficult to deal with. This curling has to do with the non-tacky nature of the adhesive which does not hold it in place as the repositionable vinyl films I will explain next.

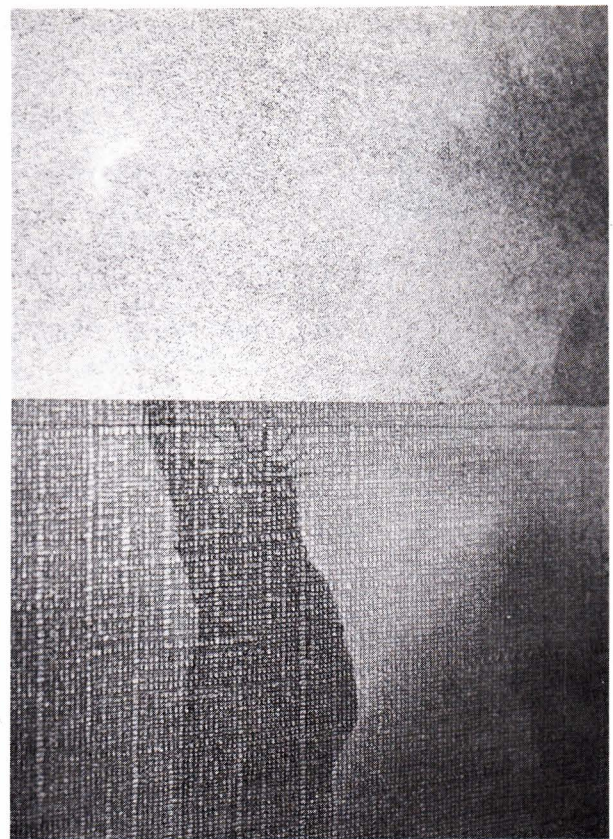
It is a manufacturer approved procedure to encapsulate by mounting either one side at a time or both sides simultaneously; either works. I prefer to mount both sides simultaneously using a release paper envelope. A clear release paper (Drytac) would allow the visual control of verifying smooth non-curled corners prior to mounting. Unlike the quick table top or roller laminator, it is much more time intensive to encapsulate with polyester films using your heat press. Taking on a "100 menu" job would not be the best use of shop time without a roller laminator.

## Vinyl Films

In the early 80's, vinyl laminating film was developed for use specifically within the picture framing industry. It was

Photo 4. A close-up of luster vinyl laminating film (top) and canvas (bottom) textured vinyl laminating film (both PrintGuard-UV). These are only two of the 8-10 finishes available. Contact your distributor for more information.

The glare was necessary in order for the photo to illustrate the patterns. The general uneven nature of the films is the reason for the required overlay foam. It is essential that even pressure is applied to all highs and lows of the film against the heat platen for a good end product.



originally developed to address the single-sided lamination process and to "look good", work comfortably with photographic emulsions without damage and to be adaptable to the use of foam boards as a substrate. When only one side of a project is to be coated or covered with a protective film this single-sided application of a laminate is known as "over lamination". Within the framing industry these films became a "glass substitute" for use when glazing was not appropriate.

Vinyl films were developed specifically for use within a heat press rather than a roller laminator, and feature a removable release paper backing (photo 3) and lower temperature requirements of 180°F-225°F. This makes them quite applicable for use with foam boards.

## Applications

Unlike polyester films, all vinyl films *require* the use of an overlay foam to ensure proper adhesion during the mounting process. Vinyl films

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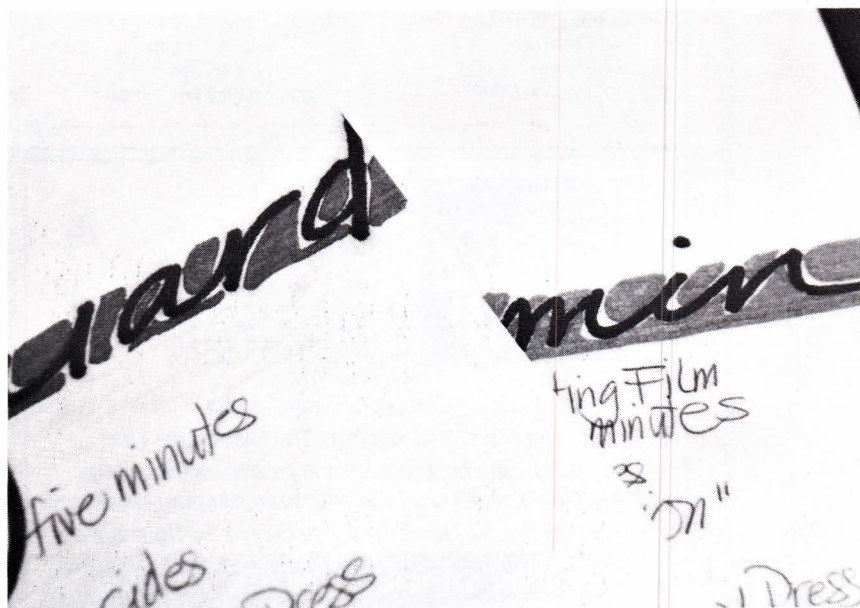


Photo 5. The polyester film encapsulation on the right looks as good as the day it was mounted. The vinyl encapsulation is bleeding, ghosting and turning dingy. Left is PrintGuard-UV matte vinyl film used to encapsulate an 8 1/2" x 11" in the press at 225°F, both sides simultaneously. Right is Seal-Lamin 1.5mm polyester film mounted at 260°F. After 6 months a very detectable bleeding of the dye from the marking pen is seen as a yellow ghosting around the letters. The bright metallic of the gold background ink (Sanford's Chisel Marker) has also lost its sheen and is darkening to a brown.



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are also available in a variety of finishes and textures (photo 4).

Since foam boards will generally not melt or break down until heated to about 230°F, it is safe to laminate previously mounted projects on foam board without damage. There are special cases where laminating first


may be implemented followed by lowering the temperature for the actual mounting itself, but as a day to day practice this is not required.

Non-breathable polyester films should not be perforated; they will not self-heal when heated. Though still non-breathable, the ability of vinyl to heal (or re-seal) itself within

the heat system allows it to be perforated for the escape of air during the mounting/laminating process. When over laminating non-breathable items, such as photographs, this perforation must be implemented for a quality end product. Pre-perforated laminating films are available as both PrintGuard-UV precut sheets from Seal Products and Heatset Laminating Film rolls by Drytac, all in a variety of finishes.

The bottom line is to know what it is you are dealing with in order to understand the mounting requirements, flexibilities and limitations. If your laminating film has a removable backing paper *it is a vinyl* developed for framers and their heat presses. It may be used with a foam board substrate, is tacky and repositionable prior to mounting, requires overlay foam, and will apply over non-breathable materials if proper perforation techniques are implemented. The only exception to the over laminating film specifications is Drytac's Glossy finish Laminating Film. This film is a polyester, rather than vinyl, which was required in order to achieve the desired high gloss finish.

Polyester films have no backing paper, mount at significantly higher temperatures making foam board susceptible to damage, is non-tacky to the touch, slippery to handle, curls near heat, does not require overlay foam and cannot be perforated. Both may be used to encapsulate or overlamine, but I have noticed reactions to some inks, probably a result of the adhesive used with the vinyls (photo 5). Vinyl encapsulations will remain much thinner and quite flexible.

Always refer to manufacturer's suggested uses of materials and equipment to establish the proper guidelines for your specific needs with your materials. I'd also like to thank Seal Products and Drytac for their assistance concerning the films, adhesives and procedures mentioned in this article. 



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