

Mastering Mounting

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Laminates... Polyester

Laminating films are neither a new trend nor a fall trend, but they *are* a misunderstood medium. One only need read the questions and concerns discussed in industry forums on the Internet to see this. One issue that appears again and again is the problem of mounting (or gluing down) laminated (encapsulated) charts for placing into an unglazed frame. First we need to clarify the definitions of laminated and encapsulated; then we'll look into types of films used in these processes: polyester and vinyl.

Encapsulation

Enclosing or sealing an item between two sheets of clear film is

known as encapsulation. Most often a request concerning lamination services (i.e.: "Do you do laminating?") is targeting this type of two-sided lamination or encapsula-



Photo 1

Office laminators are available for small ID cards to 8½" x 11" sheet paper. The clear nontacky polyester pouches are designed to slip a sheet into, place into a carrier, then feed through the machine once or twice to fuse sheets together.

tion. The conservation method of encapsulation is a refined process designed to protect documents from outside elements and involves the use of two sheets of 3.5-milimeter polyethylene polyester film or Mylar and acid-free tape. The

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vs. Vinyl

outer edges of the Mylar is sealed to protect the item from the elements to help retard deterioration.

There is also a more formal scientific approach using a special-

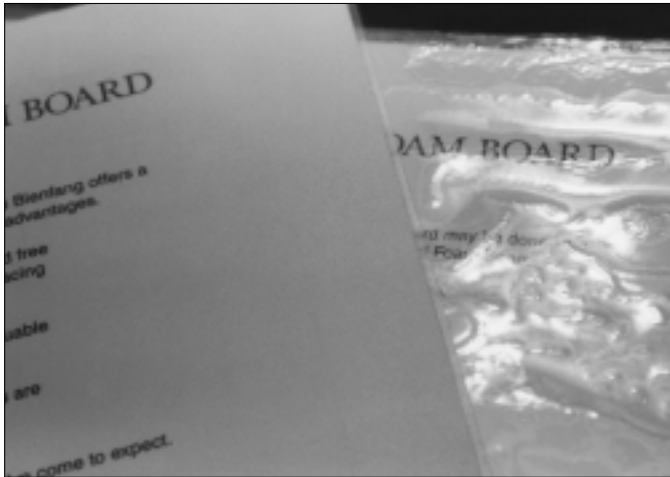


Photo 2

The left sample was laminated using a traditional office laminator and polyester pouch, while the right sample was mounted in a 210M-X Seal Mechanical Press. Trapped air is nearly impossible to avoid in a framing press, though vinyl laminates may be substituted.

ly designed vacuum machine, which was first shown to me in the mid-1980's by William Minter, a book conservator in Chicago. This machine is designed to suction all of the air from between these two sheets, then heat seal the edges into a complete vacuum sealed airtight packet.

Laminating Encapsulation

Unlike either of these conservation approaches, which incidentally are

totally reversible, laminating encapsulation directly relates to the use of permanently fusing over-laminates to both sides of a paper or document using heat-set methods

such as a mechanical or hot vacuum press.

Numerous affordable office pouch laminators, which are also called office encapsulators, are currently on the market.

These are small portable desktop machines that use rollers to heat-seal thin polyester film

layers permanently to either side of a document to achieve long-term protection.

These machines can be used to seal anything from luggage tags and ID cards to 8½" x 11" text papers (see Photo 1). Menus have also been encapsulated for years, but, because of their larger size format, are most likely created on an actual commercial or professional roller laminator.

Overview of Polyester Laminates

- Developed in the 1960's for the protection of paper
- Designed for use with roller/laminator machines in the commercial market
- Have no release paper liner
- Nontacky and slippery to handle
- Does not require overlay foam
- Cannot be perforated for use over nonbreathables
- Often mounts at higher temperatures of 240°-275°F
- Curls near heat
- Sold in a wide variety of millimeter thicknesses
- Available in rolls

Overview of Vinyl Laminates

- Developed in the 1980's as a glazing substitute
- Designed for use with heat presses in the framing market
- Have a release paper liner
- Tacky and repositionable prior to mounting
- Requires overlay foam
- Used over nonporous materials with perforation
- Mount at temperatures between 195°-225°F
- Usable with a foamboard substrates
- Not marketed to framers in millimeter thicknesses
- Available in sheets, rolls, preperforated, and nonperforated
- Available in assorted matte, gloss, and high gloss finishes and various canvas, linen, and emery textures

Professional Roller Encapsulators

The entire encapsulation process found in picture framing, meaning two-sided permanent lamination, involves the use of nonbreathable 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, and graphics and

between the layers when the second laminate side is applied. During polyester encapsulation, trapped air is nearly impossible to avoid in a framing press, though vinyl laminates may be substituted.

Polyester Films

Polyester films have an adhesive side which is best identified by a dull appearance, they are not tacky to the touch, and do not have a release paper backing; therefore they do not fall into the repositionable category as with the vinyl

early 1960's for the protection of paper rather than to make paper look good. Films are available in a number of varying thicknesses, the 1.5 millimeter film differs in composition from the two, five, 10, and 15 millimeter thicknesses in adhesive, application, and designated use.

Although polyester films may not be suggested for encapsulation in vacuum mounting systems, they can successfully be used as a glossy surface- or over-laminate on one side only. Simply make certain all

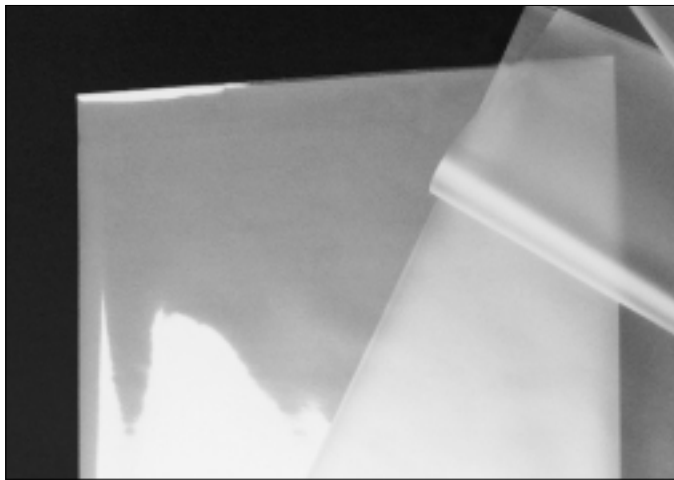


Photo 3
Polyester films have an adhesive side which is best identified by a dull appearance, they are not tacky to the touch, do not have a release paper backing, and have a natural tendency to curl.

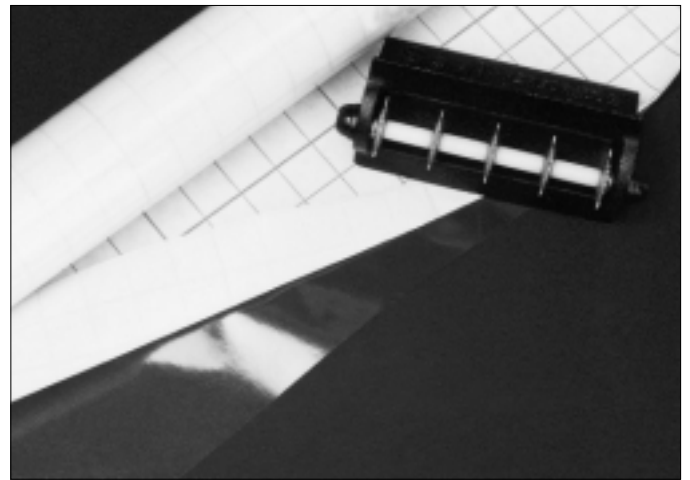


Photo 4
Vinyl films were developed specifically for use within a heat press rather than a roller laminator. Vinyl films have a removable release paper backing, are tacky when touched for placement, and lie flat for mounting in framing vacuum systems.

reprographics houses. Although these films may be somewhat adapted to use within a framer's heat press, the two-sided encapsulation of nonporous films will never produce the upper end result of a roller machine.

The problem with encapsulating using polyester films is they cannot be perforated to accommodate the removal of air in a vacuum or mechanical press format (see Photo 2). One side may be applied and will look smooth, while air will end up trapped

films traditionally used in framing as a glass substitute (see Photo 3).

Since they were designed for use with roller machines, use of overlay foam (a.k.a. foam plastic) is not required. The foam for vinyl laminating is an integral part of the air removal/transport process from the center of a project to the outer edges. Since rollers compress the air and force it out the back as the project is fed through the machine, foam is not required.

The polyester films for encapsulation were developed in the

other layers of the mounting package are porous when selecting this nonbreathable type of film.

Manufacturer Specifications

Any time a new product is purchased, make certain to read all specifications, particularly when alternating between manufacturers. Applications vary, as do temperatures, and perhaps time, within any system. For example, with Seal-Lamin products designed for use with roller laminators, the thinner 1.5 millimeter polyester is



*Photo 5
Top half is luster, the
bottom is coarse Linen.
The uneven pattern of
some films reinforce
their need for overlay
foam (Foam Plastic)
during mounting.
There are eight to 10
assorted finishes and
textures available in
the framing market as
a glass substitute.*

the more economical grade of film designed to be used most specifically with paper and ink. The low density polyethylene adhesive requires a relatively high mounting temperature of 230°F-275°F. Since the adhesive will not fuse to photographic emulsion, it is restricted to use on nonphotographic papers only. It can be written on, is water repellent, durable, and comes in gloss and matte finishes.

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

The thicker films work well for free standing displays, place-mats, ID cards and menus. Keeping in mind that I'm still referring to two-sided encapsulation, the available millimeter thicknesses will be doubled for the actual end product film thickness measurement to four, 10, 20, and 30 millimeter.

Hot Press over-laminates have an average activation temperature of 195°F-200°F for all their films. The 1.5 millimeter Polyester Heat Seal Film and 1.3millimeter Gloss Acetate Heat Seal Films are the two that cannot be perforated for laminating or encapsulation in vacuum systems. Check with manufacturers for additional information on suggested materials, photos, gloss papers, etc. when selecting these products.

Vinyl Films

In the early 1980's, vinyl laminating film was developed for use specifically within the picture framing industry. It was originally developed to address the single-sided lamination process to look good, work comfortably with photographic emulsions without damage, and be adaptable to the use of foamboards as substrate. When only one side of the project is to be coated or covered with a protective film, this single-sided application of a laminate is known as over lamination and, within the framing industry, these films became a glass substitute 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 and lower temperature requirements of 195°F-225°F which makes them quite applicable for use with foamboards that won't melt until they reach 230°F (see Photo 4). These are available in numerous finishes (i.e. matte, smooth, luster, gloss...) and textures (i.e. canvas, fine linen, coarse linen, sand...).

Vinyl Applications

Unlike polyester films, all vinyl films require use of an overlay foam to ensure proper adhesion during the mounting process and vinyl films are available in a variety of finishes and textures (see Photo 5). Foams are necessary for three reasons: to slow down the bonding time in the press; to help create even pressure against all the highs and lows of textural films; and to assist in the air transport to the

outer edges of the press during bonding.

Since foam boards will generally not begin to melt or break down until heated to somewhere around the 230°F mark, it is quite safe to laminate previously mounted projects on foamboard using vinyls without causing damage.

Nonporous polyester films should not be perforated for they will not self-heal (melt back together) when heated. Though still nonporous, the ability of vinyl to heal or re-seal itself within the heat system, where polyester cannot, allows it to be perforated for the escape of air during the mounting and laminating process. When over laminating nonbreathable items such as photographs, this process of perforation must be implemented for a quality end product. Preperforated laminating films are available from Hot Press called Pre-Pierced Over Laminating Films and Drytac as Heatset Laminating Film and are available as rolls in a variety of finishes. Check with other manufacturers for their version of these mentioned laminates.

I have noticed how a few felt pen inks react to some vinyl adhesives. The adhesives actually appear to draw the oils out of the pens, creating a halo of yellow around the outer edges. This has only occurred during encapsulation of felt pen projects and charts which have been encapsulated using soft vinyl films. I think this could be the result of the repositionable adhesive used with the vinyls creating a reaction with the oil-based felt pens (i.e. Sharpie). Also, vinyl is not what these films were developed for, and these encapsulations

will remain much thinner, very soft, and quite flexible.

So What Does All This Mean To A Framer?

The bottom line: know what it is you are dealing with in order to understand the mounting requirements, flexibilities, and limitations. If the laminating film has a removable backing paper, it is a vinyl developed for framers and their heat presses. It may be used with a foamboard substrate, is tacky and repositionable prior to mounting, requires overlay foam, and will apply over non-breathable materials if proper perforation techniques are implemented.

Polyester films have no backing paper, often mount at a higher temperature (making foamboard susceptible to damage), are non-tacky to the touch, slippery to handle, curl near heat, don't require overlay foam, and cannot be perforated. Only vinyls may be used to encapsulate and/or over-laminate in framer mounting systems.

Always refer to manufacturer's suggested uses of materials and equipment to establish the proper guidelines for your specific needs with your materials. In the October issue, I'll discuss photo substrates. ■