Heat Encapsulation with Vinyl Films

By Chris A Paschke, CPF

By definition, to encapsulate is "to make, form or place in or as in a capsule" and encapsulation is a process of encasing two-sides of an item to protect and extend it's life. Films used for this process include both archival quality mylars involving an application allowing for complete reversal, and heat activated plastics including polyesters and vinyls for permanent coatings to non-valuables.

Select materials and the process best to meet your specific needs, whether archival long term protection from atmospheric deterioration is required to meet "conservation standards", or more short term applications simply to protect the item from the daily damage of constant use.

Menus, placemats, catalogue pages, drivers licenses and video ID cards are all part of the genre that make up projects well suited to heat encapsulation...and this is the focus of this month's article.

ONE-SIDED VS. TWO-SIDED LAMINATION

Encapsulation when used in conjunction with heat methods is considered a form of permanent laminating and must always be identified as such. Customers may inquire as to whether you do "lamination" meaning "encapsulaton". Make certain you clarify your customers needs and take the opportunity to explain the processes you may offer and the difference between surface lamination as a "glass substitute" and two-sided lamination or encapsulation.

VINYL VS. POLYESTER FILMS FOR ENCAPSULATION

Vinyl films make up the bulk of the laminating films designed for use in heat mounting presses. Most polyester laminating films were designed for use with heat set roller laminator machines which force the air from between the mounting layers and film as they are sent through the machine.

The story from many manufacturers is, that both vinyl surface laminating and polyester films are adaptable for encapsulation in mounting presses...but, we'll be exploring these possibilities during this two part encapsulation article then you come to your own conclusions (photo 1).

Since vinyl films are only available in one base thickness, and since they remain soft after mounting, the end product will never have the rigidity of the heavier polyester 5 mil-15 mil films. In-store samples are a must to illustrate the result of using a vinyl film for encapsulating (photo 2).

THE VINYL MYSTERY

There is nothing mysterious or difficult in the encapsulation process when using either a heat press whether mechanical or vacuum model. The vinyl films used for surface lamination (ie: PrintGuard-UV by Seal, Heat-set Laminating Films by Drytac) may be easily used for the process of encapsulation in any press by remembering a few basic rules. Perforate all films prior to mounting, mount each side separately, and remember the overlay foam.

PRESS ADJUSTMENTS

As with any unusual project in a mechanical press, the pressure must be checked to allow for the lack of or use of a 4-ply thickness base support board when encapsulating.

Check the 45 degree angle of the arm to the table top by standing a scored piece of 18" square foam board scored and folded in half ("TTPM: Pressure", PFM March 1995).

If adjustments are required, loosen the outer locking ring (photo 3), tighten the press by turning the taller adjusting knob by twisting to the left (photo 4). Adjustment to the two knobs should be done simultaneously to maintain equal tension. Lock handle down and retighten locking ring, finger tight.

Remember an alternative adjustment would be to add shims beneath the masonite board under the sponge pad in the bottom of the press. A vacuum press will not require adjustments to the lack of substrate because of basic press function automatically adjusting to the inner thicknesses of the mounting.

PERFORATION IS REQUIRED

During encapsulation, two non-breathable films will be mounted together with a paper sheet or fabric sandwiched between them. These vinyl films do not allow air to pass through them so it is important to treat the mounting of them as any non-breathable item. It doesn't matter whether the paper between them is breathable or not, the films themselves are not!

ONE-STEP ENCAPSULATION

Once all materials are adjusted, gathered, perforated, and pre-dried (if necessary) the process itself is quick and easy. All vinyl laminating films have a release liner. Size the film to somewhat larger (1" or so for ease) than the item to be encapsulated. Lay the film face up on a clean, dry surface and peel back the film from the liner but not off (photo 5). Trap the item between the liner and film using the release liner as a backing (photo 6).

With a soft cloth smooth the vinyl film from the center to the outer edges to encourage removal of any air from the center of the sheet. Turn the prepared page face down and completely remove the liner backing from the magazine page (photo 7). Do not remove the vinyl from the liner, the film could be creased

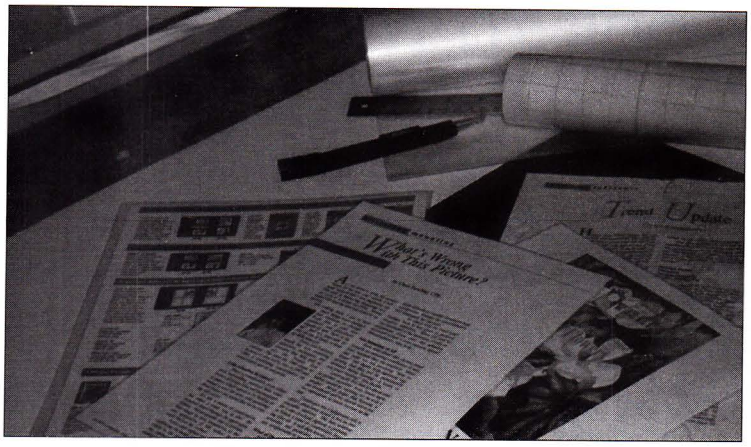

PHOTO 1
Encapsulation is possible in any mounting press, but the results will vary greatly depending upon the selected film and process used. Top right is a 5 mil polyester film (Seal Lamin), the gridded roll is a vinyl surface laminating film. Note the wrinkled results of the magazine page far right, when encapsulated with a polyester film. The other three to the left are encapsulated with vinyls.

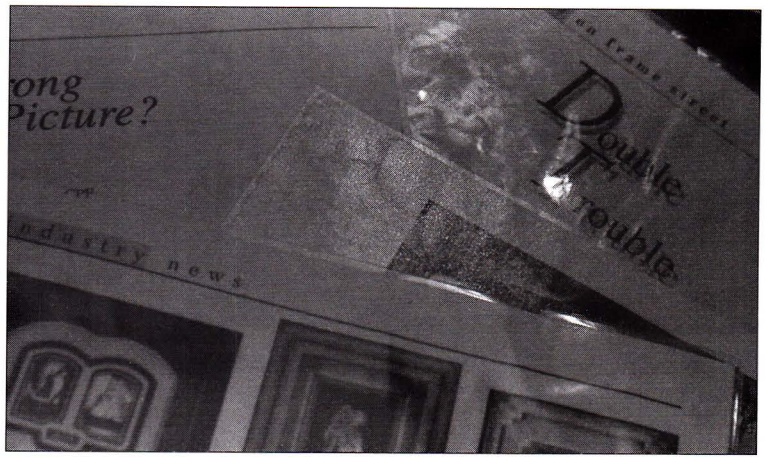

PHOTO 2
This detail illustrates the use of different finishes to achieve matte or gloss pages of vinyl and polyester for in-store samples.

PHOTO 3
With the handle locked down to take added pressure off the ring, release the outer locking ring for adjustment.

during removal or the print could break it's temporary bond from the tacky film.

Prepare the backing sheet for alignment by folding back the gridded liner for placement (photo 8). Position the tacky film backing to the prepared front, by aligning the top edge (photo 9), pull the remaining release liner away from beneath the film to expose the remainder of the tacky film. Smooth flat from the center to the outer edges using a soft cloth to help remove excess air.

DOUBLE THE PLEASURE DOUBLE THE FOAM

Trim excess film from the edges with a cork backed straightedge and sharp blade to 1/8" of the magazine sheet. The 1/8" must remain surrounding the item or the encapsulation will not be entirely sealed.

Make certain to use the required overlay foam when mounting vinyl films. Films on both top and bottom will require overlay foams both top and bottom during mounting (photo 10). Place in the press at 220F degrees for 5 minutes. If not long enough put it in again, with all it's layers in place. Don't rush, you won't ruin it by leaving it in 5 minutes too long.

The entire encapsulation process may also be achieved by mounting each vinyl side separately. This may be a less stressful method when it comes to sweating out a large encapsulated project, but really isn't necessary with tacky "hold in place" adhesive, repositionable, vinyl films.

SUBSTITUTE SUBSTRATE?

Though manufacturers may recommend using a board stiffener beneath the mechanical press mounting, I have found no reason why this is necessary (photo 11). The encapsulations appear to turn out just as good with these vinyl films whether mounted one side at a time, both together, with or without an added alternate substrate...in a mechanical press.

VACUUM PRESS VARIABLES

When using a vacuum press for encapsulation the two-step temperature method of working with a perforated film will be necessary ("Two-Stepping is More Than A Western Dance", PFM April 1996). This is due to the delay in the pull of the vacuum in relation to compressing the air from between the non-breathables.

A board is also required beneath the mounting in a vacuum press because of the lack of substrate. The bladder/diaphram could wrinkle during the pull of the vacuum and create permanent creases in the encapsulation. Use of

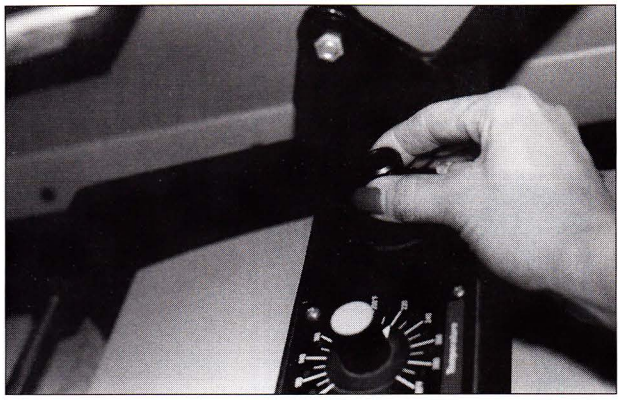

PHOTO 4
Twist the two tall knobs on top of the press counter-clockwise to tighten the press to accommodate for the lack of substrate during encapsulation.

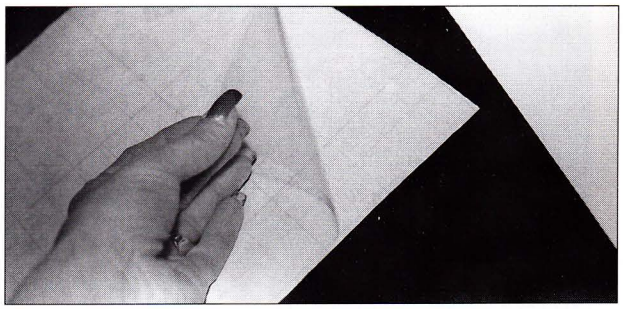

PHOTO 5
Peel back the vinyl film from the liner to allow for the magazine page to fit into the sized film/liner unit.

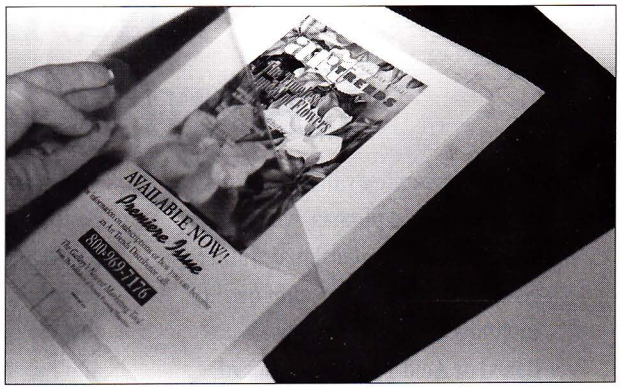

PHOTO 6
Trap the magazine page between the liner and perforated film, using the gridded liner as a backing.

PHOTO 7
Remove the release liner FROM the prepared magazine page rather than the page from the liner. This will prevent ease of handling, especially large pieces, and creasing.

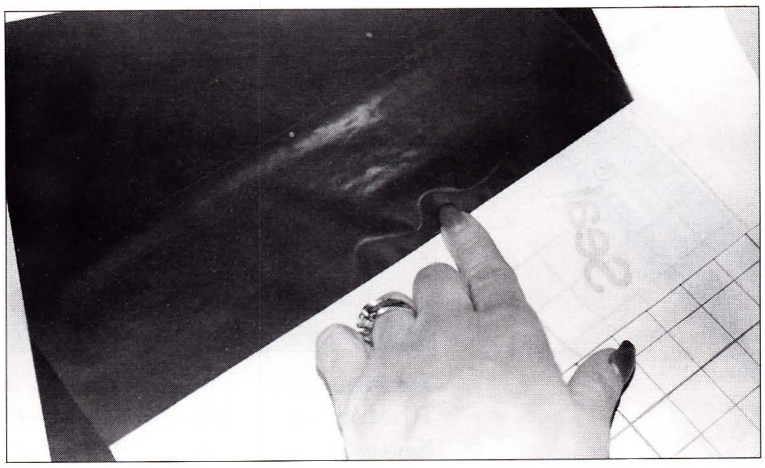

PHOTO 8
Peel back and fold down the second sheet's release liner to expose the top few inches of tacky film.

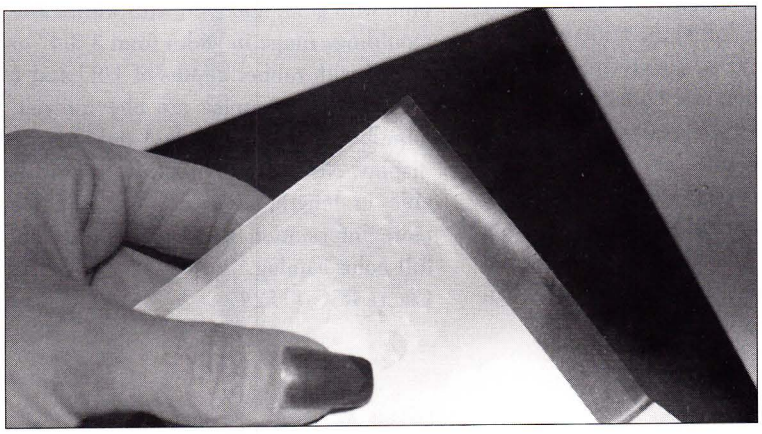

PHOTO 9
Align the two sheets across the top edge fro placement. Then remove the release liner remaining by pulling off from between the two tacky vinyl sheets.

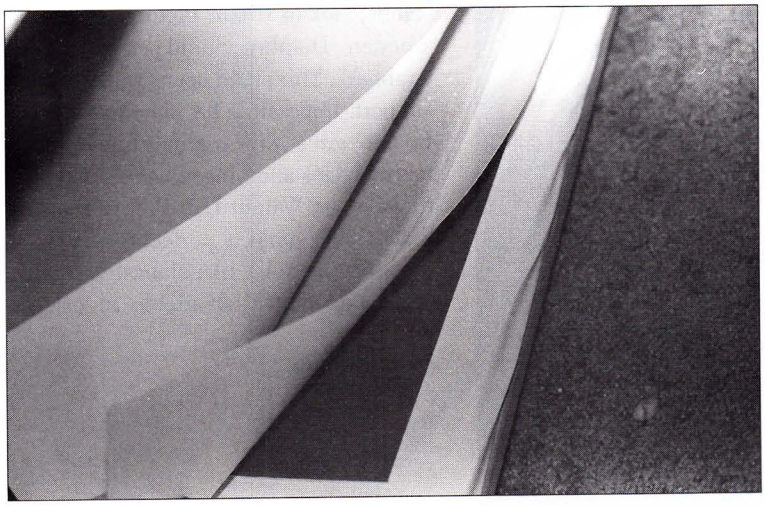

PHOTO 10
Though manufacturers may recommend using a board stiffener beneath the mechanical press mounting, I have found no reason why this to be necessary. A board is required beneath the mounting in a vacuum press because of the lack of substrate, however.

the release board as a substrate will not work because of the vacuum and silicone on the board preventing air to escape from between them when pressed against the platen.

THE PROS AND CONS

So is all this worth it? The vinyl film is easy to use when perforated films, overlay foams and substitute substrates are supplied as needed, but vinyl encapsulations will always remain very soft upon completion. Yes, they are pretty waterproof and might make great placemats when used with fabrics, but not hot pads. Vinyl can melt if too hot.

Polyester films make much more traditionally looking encapsulations with stiffer, shinier surfaces...but the process is iffy in a heat press. Next month I'll explain the encapsulation issue using these and other film options in your presses. The bottom line, if it's a service that makes us more money, maybe it's worth offering. ■

Chris A. Paschke, CPF, owns Designs Ink, Oxford, Connecticut, featuring commercial and custom framing, product consultation, design and education. Specializing in mounting, matting and design creativity she works with numerous industry leaders including Bienfang, Crescent Cardboard, Fletcher-Terry, Larson-Juhl, PFM, PPFA, and Seal Products.

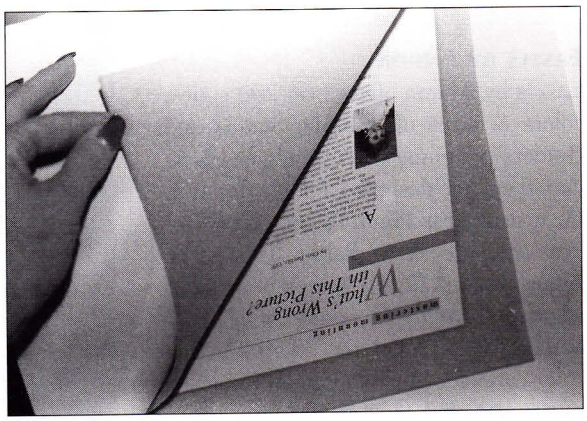

PHOTO 11
Make certain to use the required overlay foam when mounting vinyl films...remember, films on both top and bottom require overlay foams both top and bottom during mounting.