



PRODUCT BULLETIN 4

How to use TAP Clear-Lite Casting Resin

- **Crystal Clear**
- **Small or Large Casting**
- **UV Stable**
- **Embedments**

TAP Clear-Lite Casting Resin

Clear-Lite casting resin is a clear low exotherm casting polyester used for solid castings and embedments. Clear-Lite is noted for its clarity and ability to be cast in mass. In its liquid form, casting resin has a consistency of corn syrup and a slight color ranging from straw to light aqua. It cures (hardens) with the addition of MEKP Catalyst. During the hardening process the slight color disappears and the resin becomes crystal clear.

The styrene odor of casting resin is less objectionable if you have good ventilation when pouring. Once cured, your cast pieces will have little if any odor. Casting resin should be stored at room temperature (72° F.), out of direct sunlight, and out of reach of children. TAP Clear-Lite Casting Resin is designed to cure bubble free and is UV stabilized.

Using casting resin is more art than science. The information in this product bulletin is only a guideline. Most projects require experimentation to obtain final desired results. Start small to learn the behavior of casting resin before attempting a large project.

Clear-Lite Resin can be used to cast table tops with or without embedments. Casting Resin does not cure to a self-leveled finish. The top may require sanding and buffing or the use of mylar to create a perfectly level smooth surface. Ultra-Glo is another option for table tops.

Using Catalyst

Many factors influence the speed of resin gel or cure. Most important of these are:

- amount of resin used
- temperature of the room
- temperature of the resin
- temperature of the mold
- additives, such as dyes, pigments, and embedments

There is an optimum amount of catalyst for each type of project. In all cases, refer to catalyzing instructions on the label. Never mix more resin/catalyst than can be poured in 10-20 minutes.

Catalyst (hardener) starts a chemical reaction that creates heat which cures the resin. An excessive amount of catalyst will overheat the casting, possibly causing fractures. Thicker pours require less catalyst because a thick casting retains heat. A thin section dissipates the heat requiring more catalyst.

Room temperature, resin temperature, and the temperature of the mold affect gel time. (The higher the temperature, the faster the gel.) Too fast a cure will cause fractures. The high heat of the fast cure also causes excessive warping and fading of colors.

Humidity slows the cure of resin. Moisture in the resin, which may come from humidity in the air or from embedments, can cause the resin or casting to be cloudy. Keep the can of resin capped tightly when not in use.

Important: Always mix the resin and catalyst very thoroughly. As a rule of thumb, mix for 60 seconds. When mixing, use care to scrape the sides and bottom of the container.

How Much Catalyst to Use

This chart is intended as an approximate guide only, and is expressed in drops of catalyst per ounce of resin. It is based on a room temperature of 70°-75° F. For warmer temperatures, decrease catalyst by a drop per ounce of resin; for cooler temperatures, increase the amount of catalyst by a drop per ounce of resin. It may be necessary to experiment to determine the correct amount of catalyst for your specific conditions.

- When using small molds, use the higher numbers of drops of catalyst recommended. When using larger molds (over 1/2" thick), use the lower number of drops of catalyst recommended.
- If pouring more than five layers, keep in mind that each catalyzed layer adds to the build-up of the heat during the curing process. You'll need to experiment to determine the number of drops of catalyst for each layer that will allow a good, hard cure without fracturing around embedments. Castings over 1/2" thick generate excessive heat. Experiment first with reduced catalyst to prevent cracking and over heating.



SINGLE-LAYER POUR

Layer Depth	Drops of Catalyst Per Oz. of Resin
1/8"	12 -15
1/4"	8
1/2"	6
3/4"	5
1" - 1-1/2"	4

MULTIPLE LAYER POUR*

Layer	Drops of Catalyst Per Oz. of Resin
1st Layer	4-5
2nd Layer	3-4
3rd Layer	2-3
4th Layer	1-2
5th Layer	1

Adding Color

Use TAP Dyes for transparent colors. Add dye to resin before adding the catalyst. The dye is concentrated, so use sparingly until you obtain the desired shade. One drop of **Castin' Resin Transparent Dyes** per ounce will create a light shade; three drops per ounce will generally make quite a dark shade. Stir thoroughly. Use **TAP Premium Opaque Pigments** for opaque castings. Color Pigment is most thoroughly dispersed by mixing in a small amount of resin, such as 1/4 ounce color pigment to one ounce of resin. Then disburse the concentrated mixture into the balance of your resin.

For veins or streaks of color, add three drops of catalyst to 1/4 oz. of color concentrated resin mixture. Add this mixture slowly to the resin casting, stirring only slightly. Pour slowly into the mold

Always add the dye or pigment before catalyst. This will give you time to obtain the desired shade. After reaching the desired shade, add the catalyst. Do a little experimenting to obtain some very unusual and pleasing effects.

Embedments

Here are some suggested objects that can be suspended or encase in casting resin: **Crushed glass • Coins • Fabric* •Flowers - dried or pressed • Glass jewels or marbles •Glitter • Insects or biological specimens • Jewelry findings • Leaves - dried or pressed • Mechanical parts, nuts bolts etc. • Metal-coins or engraved plates • Paper* •Photographs* • Rocks, pebbles, gravel • Seeds, peas, beans, pasta, spices • Sequins • Shells • Smaller resin castings • Stamps*, paper money* • Wood***

*Seal objects that have a tendency to 'wet out' or darken when a liquid is poured over them. Ultra-Seal™ works well. Brushed on coats of Ultra-Seal™ should be allowed to dry completely before embedding the coated object in casting resin.

Any embedment must be dry, wax-free and grease-free for the resin to adhere well. Embedding plastic pieces requires experimentation as the heat generated during casting may cause some plastics to distort. For example... acrylic, polyethylene and polypropylene plastic pieces are more heat resistant than those made of vinyl or styrene based plastic.

Casting in a Rigid Mold

Preparation

Read all instructions before starting your project!

These include manufacturer's label cautions as well as project directions.

- Choose a well-ventilated area away from any food preparation, where a room temperature of 65° to 75° F. can be maintained.

- Cover a level working surface with Mylar™ plastic sheeting, several layers of wax paper secured over newspapers, or sheets of plastic wrap taped to your work surface.
- Gather all materials before starting your project.
- Keep acetone or rubbing alcohol handy for cleanup of liquid casting resin.

Measure Resin

- Determine the number of layers to be poured and the amount of resin required for your first layer. If the mold you are using does not state the number of ounces it contains, fill the mold with water and then pour into a measuring cup to determine the total amount of resin that will be needed.
- Allow plastic poly molds to air-dry to avoid scratches; non-plastic molds may be dried with a lint-free cloth or paper towel.
- Use a wax-free paper or plastic measuring/mixing cup with ounce graduations for accurate measuring of resin.
- Do not use Styrofoam or clear plastic cups as they will melt when contacted by catalyzed resin.
- Use a clean cup and stir stick for each batch of resin mixed.
- Pour the appropriate amount of casting resin into your disposable measuring/mixing cup.
- Use disposable wooden stir sticks or tongue depressors for mixing.

Add Catalyst

- The size of the mold, the depth of the pour and your room temperature will determine the amount of catalyst used.
- Following the chart, add the appropriate amount of catalyst to the casting resin. It is very important to be exacting in this step to assure proper curing.

Mix thoroughly

- Using a stir stick or tongue depressor, mix resin and catalyst thoroughly and vigorously for at least one minute. Scrape the sides and bottom of cup with your stir stick to insure proper mixing of resin and catalyst.

Pour into mold

- Make sure mold is clean, dry and level before pouring. Do not pick up or move the mold once you have poured the first layer. (See Figure. #1)

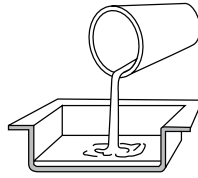


Figure 1

Allow to gel

- Resin will gel (to consistency of set Jell-O™) in about 15 to 25 minutes. Test the surface with a stir stick. There must be sufficient firmness to support the weight of your embedments. If surface has not reached a firm gel, wait a few more minutes and test again with your stir stick.
- Layers in a casting must not be allowed to fully cure or harden until the final layer has been poured. A fully cured layer will shrink away from the sides of the mold, allowing the successive pours to run down the sides of the previous layers. If this should occur, it would necessitate a lengthy sanding and polishing job after full cure.

Place your embedments

- REMEMBER... you are layering in reverse. The first layer you pour becomes the front of your cast piece.
- Put embedments in place face down on top of the gelled layer. (See Figure #2)

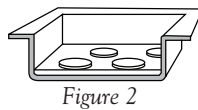


Figure 2

Tips to prevent trapping air bubbles

- When embedding items that may entrap air bubbles on their 'face', pour half of your next batch of catalyzed resin into the mold before placing the embedments. Then, lower embedments slowly into the resin to expel air bubbles.
- For a dimensional object such as a dried flower, dip it into catalyzed resin before placing face down onto the gelled surface.
- Gently press embedments with your stir stick to free trapped bubbles.

Pour Additional Layers

- Additional layers of embedments will give the appearance of greater depth and a dimensional 'floating' look.
- Referring to the Catalyst Chart, add layers, repeating the procedure previously outlined. Be sure to allow each layer to gel before adding successive layers. (See Figure #3)
- For the final layer you may wish to create a background using colorants. Generally, 2-3 drops of dye or pigment per ounce of casting resin will produce the desired color without inhibiting the cure.
- Dye or pigment is added to the resin in addition to catalyst. Make sure the previous layer has firmly gelled before pouring the final color layer. Do not overfill your mold. (See Figure #4)

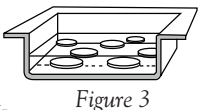


Figure 3

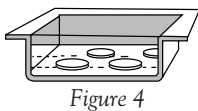


Figure 4

- For the final cure, Surface Curing Agent can be used in addition to catalyst and resin to produce a tack-free surface. (When Surface Curing Agent is used without colorant, the appearance of the final layer will be slightly hazy rather than clear.)

Remove casting from mold

- Tap the surface of your cast piece with a clean stir stick. When cured, it will 'click hard' without sticking. The edges of the cast will have shrunk away from the sides of the mold and all or part of the face of the mold.
- If surface tackiness remains, allow up to several days hardening time, checking periodically.
- Grasp the mold by the edges, invert over a clean piece of Mylar™ or plastic wrap and flex the mold as you would an ice cube tray. The cast, if properly catalyzed and hardened, should drop out of the mold easily.
- To minimize blemishes and fingerprints, do not handle your casting until it is absolutely tack free.
- Castin' Craft Resin Spray can be used to eliminate tackiness.

Finish back of casting

- It is normal for the final surface layer to have a slightly textured 'orange peel' appearance.
- To protect table tops and provide a more finished look, you may want to cut a piece of felt or sheet cork and glue it to the base of your cast piece.
- To remove minor blemishes such as fingerprints, spray with a coat of Castin' Craft Resin Spray, which is a clear acrylic sealer.
- If an absolutely smooth perfect finish is desired, sand any rough spots with #150 grit sandpaper to create a flat surface. Then 'wet-sand' with #220, #400, and #600 grit sandpaper. Polish out any minute scratches with a polishing compound such as jewelers' rouge or rubbing compound. Polishing can be extremely time consuming and can be avoided by using a color background and/or covering the back of your casting with felt

Casting in Flexible Rubber Molds

Clear-Lite Casting Resin fully cures where it is in contact with the sides of rigid molds, whether they be glass, polyethylene, etc. Flexible molds are a different story. Because flexible molds can move, and polyester resin shrinks as it cures, the resin often remains tacky over the entire surface. There are a number of methods that can reduce that effect.

The best method is to use **TAP Platinum Silicone. Clear Lite Casting Resin** fully cures where it is in contact with this kind of mold. It is often necessary to leave the resin in the mold over night for the best results.

If other mold materials are used, be sure to determine if a mold release is required. Here are some tips that will help improve the outcome:

- Heat the mold to about 90° F. A microwave is a good method for smaller molds. A cold mold will inhibit the cure of the resin.
- Warm the resin to about 90F. Never heat in a closed can or over a flame. Place the can in a bucket of hot water with the lid loosened.
- Use slightly more catalyst. You will need to experiment here. Too much catalyst can cause excessive heat.
- Keep the mold/resin warm during the cure. Working in a cold setting such as an unheated garage is detrimental.
- Leave the casting in the mold until it is fully cured. If you take it out early, do not put it back in the mold.

If the part is still tacky after removal from the mold, heat can create a full cure. Place the part in a warm location, (inside a box set in the sun for example). If there is not a good initial cure, full cure may take several days.

View all of TAP's how-to videos on plastic, fiberglass, mold-making, window films, and more at:

http://www.tapplastics.com/product_info/videos



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