

Casting Insect Specimens in Liquid Plastic

Materials Needed:

1. Silicone molds
2. Castin' Craft clear polyester casting resin
3. Castin' Craft catalyst
4. Mold release spray
5. 1 oz plastic cups (preferably #5) NO WAX CUPS
6. Small stirrers (plastic or wood)
7. 180 grit sanding sponge; 400, 600, and 1500 grit sand paper
8. Polyacrylic protective finish & small brushes
9. Forceps
10. Needles or pins
11. Insect specimens

Process:

Setting Up

1. Determine which specimens you wish to cast and set aside the appropriately sized silicone molds (I most often use either 1 in x 1 in or 2in by 2 in)
2. Remove specimens from the ethanol solution. While they are still wet, use the forceps and needles to put them in the right position for the eventual cast. Set aside to let dry. (Some specimens -- mostly larvae -- will need poked with a needle so that the liquid inside can dry without causing shriveling due to a vacuum effect. Sometimes, however, they may still shrivel.)

First Layer

1. Spray the silicone molds with the mold release
2. Mix together the casting resin and the catalyst. Disregard the *catalyst chart* found on the back of the casting resin. For the first layer mix 4 drops of catalyst per 1 ounce of resin. If using the 1" x 1" mold, pour in 1/8 oz of solution per each mold. If using the 2" x 2" then pour 1/4 oz per mold. Depending on the amount of specimens you are doing, you may need to mix multiple ounces. It is fine to reuse the 1 oz cups for each mixture, however unless it is #5 plastic, the solution will eat at the cup causing it to rupture and make a mess. I would not reuse other plastics for mixing more than twice.
3. When you have finished pouring the first layer in each mold, check each mold for bubbles. Using a needle, push the bubbles to the corners of the molds. Sometimes they

pop, sometimes they don't. It is important that they do not obstruct the view of the specimen. Let the first layer dry for about 45 earth minutes.

Second Layer

1. By the time you are ready for the second layer, the specimens should be dry. Check their rigidity. If they bend or flop when you pick them up with the forceps then they are not ready. When wet specimens are put into the cast they can get air pockets or other imperfections. As stated earlier, some of the specimens -- specifically aquatic larvae -- might shrivel up. This usually makes them unusable. Others might change color, but as long as their shape hasn't changed significantly they are good to use.
2. For the second layer, mix 3 drops of catalyst into the resin. If you are making many specimens then it is wise to do 2 drops so that the resin hardens slowly. If you mix too much catalyst, the resin might hardens before you have placed all the specimens.
3. Use your stirrer to place some resin on the bottom of your specimen. This causes few or no bubbles to form between the specimen and the first layer. You can dip the specimen in the solution to make it evenly cover, however the specimen will be fragile and the weight of the resin may cause pieces of it to snap off. You can also let some resin drip where you are about to place the specimen if you are worried about it being too fragile.
4. When the specimen is placed in the desired position, slowly pour in the second layer. Pour directly onto the specimen, but only use enough resin to just cover the first layer (<1/8 oz). If this layer is too thick, the specimen will float and reposition itself.
5. Finally, usher any formed bubbles into the corners of the molds. Bubbles will form from within the specimen, and this can take time. Patiently wait for bubbles to form so you can move them from obstruction.

Third Layer

1. With your finger, check to make sure that the second layer has solidified enough. It should feel like hard jello. If the second layer has not cured enough then the specimen may lose its position and float to the top. Cure time for the second layer will vary based on the amount of catalyst used.
2. Mix the resin for the third layer. I do 3 drops of catalyst per ounce, but 4 drops is fine to use as well.
3. The amount of resin poured for this layer varies. Make sure to pour enough that the specimen is submerged and has about the same amount of resin over top as it does

underneath. The rule I use during the first layer -- $\frac{1}{8}$ oz for 1" x 1" molds and $\frac{1}{4}$ oz for 2" x 2" molds -- sometimes works here, however it is best to try and eyeball it.

4. Finally, push away any bubbles that are obstructing the view of the specimen.
5. This should be your last layer. Sometimes with thicker specimens you may have to do a fourth layer, but that is mostly done for flowers, not aquatic insects.

Cure Time

The resin should be solid enough to remove from the silicone mold by the next day (~20 hours). However, these finished casts should be placed in an incubator almost immediately. They will have grease from the mold release spray on them that can be rinsed off with cold water. The incubator should be set anywhere between 90-100° F (32-38° C). This step will help the casts cure faster than sitting at room temperature. Casts should take 2-3 hours to cure fully whereas being left out could take 1-2 weeks.

Buffing and Sanding

1. Use a lower grit sandpaper (400 grit) for the jagged edges that form around the top of the casts. This is the only step of this process where the cast and the sand paper should remain dry.
2. Creases will form around the sides of the casts -- especially the 1" x 1" -- so they will need sanded as well. I use a 180 grit sanding sponge for this step, but it is very worn. I'd say that its grit is truer to 300 or 400 at this point.
3. Lower grit paper will allow you to sand away imperfections to make the cast smooth. Higher grit paper, 600-1500, will help buff out scratches caused by the lower grit. If needed, wrap the higher grit sand paper around the sponge to make buffing easier.
4. Remember to be careful. While the casts should be fully cured at this point they can still hold unwanted impressions (i.e. fingerprints, knicks, etc.). Be aware of the marks you are making on the casts and do your best to avoid them.
5. When you are finished buffing, the specimens will look cloudy and slightly opaque. Putting them back in the incubator for 20-30 minutes will get rid of that.

Finishing

Make sure you can lay the casts on a non porous surface. Do not lay them on a paper towel. I just use plain notebook paper. Use a small paintbrush, put a thin layer of Polycrylic on each side of the cast. Wait for each side to dry before applying more to other sides.