



PYROS GLASS STUDIO

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PYROS TECH NOTE #1

Making Flexible Molds with Silicone Caulk and Pyros Silicone Accelerator

Silicone rubber molds preserve extraordinary detail and flexibility, but Silicone materials can be expensive and hard to find if you do not live in a large metropolitan area. If you are willing to sacrifice a little bit of quality, you can save money and time by using inexpensive silicone caulk purchased at the lumber yard or hardware store. The quick and easy molding process below partly employs a technique from Henry Halem's *Glass Notes*.

Use the right kind of caulk

First of all, use only 100% silicone I caulk, such as DAP 100% Silicone, GE Silicone I or GE Advantage 100% Silicone. This is the stuff that smells like vinegar as it cures. Avoid anything with acrylic in it. DO NOT use GE Silicone II or DAP Silicone Ultra, which employ a different chemistry. Don't use bathroom caulk, which contains anti-fungal agents that we don't need. Silicone caulk usually costs between 3 and 4 dollars a tube. Make sure that you check the expiration date on the tube, particularly if you live in a warm, damp climate.

About Silicone

Silicone I does not "dry". Instead, it cures by accepting moisture from the air. That's why silicone can take a very long time to set up in dry climates, and often does not cure all the way through in thick applications. The outer layer cures first and makes a waterproof barrier that prevents the interior from setting up. Pyros Silicone Accelerator reacts with Silicone I to cure it all the way through in less than an hour, even in thick layers.

Making a flexible mold with silicone caulk

You will need:

- A model to mold
- 100% Silicone caulk
- Pyros Silicone Accelerator
- A disposable cup or bowl for mixing the caulk (paper or plastic is fine)
- A disposable stirrer to mix the caulk (wooden craft sticks work great)
- Two buckets (or bowls) of warm water
- Liquid dishwashing soap
- Baking soda

Safety first!

The active ingredient in Pyros Silicone Accelerator is Benzoyl Peroxide, which is the same chemical used in acne medication, but in a *much* higher concentration. In these concentrations it will irritate your skin, so wear gloves when working with it, and avoid eye contact. See the package insert and MSDS for more

information. When silicone cures it releases acetic acid (vinegar) and methanol (wood alcohol), so work in a well-ventilated area.

1. Prepare your model

Your model can be made of wax, modeling clay, or any non-porous material. Porous models (wood, shell, clay, plaster, etc.) should be sealed with a coat of acrylic lacquer. The curing process releases vapours that may harm surfaces such as Aluminum, Zinc and PMMA (Plexiglas). If in doubt, test a small amount on a hidden area of your model before using. Place the model on a non-porous surface such as a sheet of window glass. Coat it with a thin layer of dishwashing liquid to act as a mold release.

2. Prepare the buckets

In the first bucket of water, put a couple of long squirts of dishwashing liquid. The soap will act as a release agent so you can get your mold off of your model. You want the water to be quite soapy, but not sudsy. Stir gently.

In the second bucket of water put a handful of baking soda. Stir gently.

3. Mix the Silicone

Use a caulking gun to squirt the desired amount of silicone into a disposable cup or bowl. Add Pyros Silicone Accelerator proportionately, using about a 1" ribbon of cream for a golf-ball sized amount of silicone. Mix with a disposable stirrer until you have a uniform color. Stir slowly so as not to introduce bubbles, and scrape the sides and bottom of the container to make sure that all the silicone is thoroughly mixed. The silicone will start to cure immediately. You'll have about 5 minutes working time.

4. Make a silicone ball

Use your stirrer to coax the silicone into a single large blob and drop it in the bucket of soapy water, where it will float. Coat your hands with dishwashing liquid. Reach into the bucket and pick up the blob, which is quite soft at this point. Gently pat it into a ball. Do NOT knead water into the silicone.

5. Mold your object.

Take the ball of silicone and pat it gently into a thick slab large enough to cover your model. Working from one end, press the slab down over the model, pushing the silicone gently into undercuts. Wait a minute and then make any final adjustments. Rinse and dry your hands.

6. Demold and deodorize

Your mold is ready when it is hard to the touch. This usually takes between 30 and 60 minutes. Peel the mold off the model and place it in the bucket of water with baking soda. This helps to neutralize the vinegar produced by the curing process. Leave it there for about an hour. Even after you do this, the mold will smell of vinegar, but the smell will go away in a few days.

Your mold is now ready to use.