

Making Artificial Mould Stones for an Aquarium

Jyrki Granath. Translated by Sari. Photos by the author.

Soon after the 2006 AGA International Aquascaping Contest results were announced, Erik Olson received an e-mail from a member asking how to contact the creator of the winning Biotope aquascape with the artificial rocks. Fortunately, the author had already published an article on how to make the rocks. The AGA contacted Jyrki and he was happy to have a friend translate his Finnish article into English for TAG. See page 23 for another look at Jyrki's winning tank.

Sometimes you might want to use something from nature to decorate your tank that is not suitable as it is: for example a tree stump that floats, or a large stone that is too heavy for the glass tank. Taking a mould of

the object and making a copy of the original can solve the problem. This way you can create an element that is suitable for the tank, without solvents or harmful ingredients, which won't float or weigh too much. Hollow elements don't even restrict swimming space for the fish. In fact, it even makes it possible to have more fish in the tank because the fish can seek shelter in the caves of the hollow elements.

So what is the moulding technique all about? I got my inspiration at the FISU 2004 meeting in Espoo, Finland where Sune Holm, father of the famous Back-to-Nature aquarium backgrounds, was lecturing about the natural decoration of the aquariums.

Artificial stones can be just as attractive and safer than real rockwork.



The seminar was mostly about making backgrounds from Styrofoam, but for me the most important and interesting part was the briefly mentioned moulding/casting technique.

Making the Mould

Sune Holm uses latex milk to make the mould, but as this is seldom available in Finland I decided to try Maitoliima (“Milky glue”) produced by Kiilto Oy. This glue is based on latex and is meant for gluing textiles and leather.

I started by taking a stone about the size of a man’s head from my backyard. I washed it clean with water and while the surface was still wet I added the first layer of glue, dripping it on straight from the bottle. (The reason I dripped it on was to avoid the air bubbles that can occur if you use a brush. These would be replicated in the final object. I also tried using a bottle for spraying flowers but the nozzle blocked up at the first try. Dripping is good!)

After a couple of hours, once the layer was skin dry, I added a new layer with a brush. Then I added a third layer, coating with gauze first to make it stronger and then glue so that the gauze was wet. Then I added



Drip the first layer of glue on the stone that you wish to duplicate.



After a couple of layers, gauze was added to provide strength.

a few more layers of glue until there were six layers in total and let them dry overnight.

Next, I constructed a supporting device I called a “cradle,” to keep the otherwise uncontrollably soft and limp mould the right shape and form. The cradle is easily made of polyurethane spray foam sold in any hardware store.

As the mould’s surface is still quite sticky due to the glue, it is easier to handle if you use a layer of talcum powder.



The stone is sprinkled with talcum powder for easier handling.

Once it has been covered with talcum powder, the stone with the glue mould should be covered with aluminum foil. This phase should be done with care. To stop the polyure-



The stone and the glue mold are carefully covered with aluminum foil.

thane foam from sticking into the mould, make sure there are no holes in the foil. You can even use two layers of foil laid in opposite directions.

After that, spray the foam on top of the foil-covered mould. Let the foam dry overnight and then you can open the package!



Spray the foam on the foil-covered mould.



After drying overnight, you can remove the stone from the cradle.

When taking off the mould from the stone, use talcum powder. The surface of the mould against the stone can still be sticky and may stick to itself, which can ruin the process. Dust the stone as you take it from under the glue mould.



Peel the mould from the stone. Again, use talcom powder liberally.

Before getting to the actual casting, I've let the glue mould dry in the cradle for a couple of days. I'm not sure if this is necessary, but I did this just to be on the safe side!

Casting the "Stone" in the Mould

At this point we'll start using special products not found in every household. It's also important to note that these products are in use in Finland (see box page 28).

To begin casting the stone, clean the mould with lukewarm water to get all "extra" particles off the surface. The glue can be washed when it has dried thoroughly. Dry the mould carefully, then cover the mould with peeling agent. The agent is made of 6 parts lacquer petroleum and 4 parts white Vaseline. Mix the ingredients so that it is a bit thinner than sour

Materials Needed for Artificial Stones

- **Sika Top Seal 107 special plaster.** This is drinking water-approved and therefore usable in the fish tank without a cover layer. Sika plaster is sold in huge sacks. It might be a good idea to get together with friends, such as those from an aquarium society, rather than buying the whole sack alone.
- **Earth colour powder dye,** with which the plaster can be dyed a required shade. These are sold in small packages by Uula-tuote in Finland.
- **“Aquarium lacquer” NM Klarlack FS 023/80** is imported by Tremco Finland Oy. You can order this product from your closest paint seller if it's not on the shelf. It is used to strengthen the inner surface of the stones but can be replaced with other products, for example fibreglass, as long as it is not poisonous to the fish!
- **NM TIX 150 thickening product.** This is used to thicken the lacquer or binding agent, so that you can get thicker layers with one brush stroke. Use a mask when handling TIX because it is a very light dust.
- **White Vaseline.** This is used for peeling when taking off the mould.



Cover the mould with peeling agent.

milk. It's easier to stroke the agent to the surface if you turn the mould inside out.

Turn the mould back to the right position and lay it in the cradle. Take a small break to enable the lacquer petroleum to evaporate from the Vaseline.

The next phase is the tinting of the mould. The artificial rock surface will look more natural if the deep spots are darker than the protruding



Tint the ridges of the mould by dabbing black dye powder along the surface. These will be dark crevices in the final product.



ones. Take some black dye powder on a ball of paper or piece of sponge and wipe along the surface of the mould so that the black dye sticks on the high points. Then they will be in the dents as the mould is a “negative” of the original.

Now you can start with the first layer of plaster. Make a mixture of Sika plaster, approximately 1 part liquid and 4 parts plaster powder, that can be stroked with brush. You can find the right consistency by experimenting. The mixture should be quite thick. If it's too thin, it cracks easily when it dries. If it's too thick, it can be difficult to paint on. When making the mixture, add the dye powder as well—brown, terracotta or whatever you prefer. The easiest tool for mixing small portions is a regular whisk, stolen from the kitchen drawer.

Stroke an even layer of plaster all over the mould and let it dry for about 24 hours before applying the next layer.

After the second layer has dried for about 24 hours you can start finishing the object with the lacquer. I have done this with the previously



Stroke an even layer of plaster all over the mould and let it dry 24 hours.

mentioned lacquer. The lacquer is made of two components, a basic agent and a hardening agent. It is completely harmless when dry and a little elastic too, as is Sika Top Seal 107. Take two parts of lacquer, one part of hardening agent and a small amount of TIX 150 thickening agent and mix carefully. A small amount works out at about a tablespoon for 2 dl of lacquer.

Mix moderate amounts at a time and very carefully. If it is not mixed well, part of the lacquer may not harden.

Warning!

Mix small amounts of lacquer and don't be too greedy with TIX and try to mix too much. I tried to make a “mega amount” of lacquer and it took a while to mix as I tried to get a dough-like amount of lacquer.

My mobile phone rang and I was chatting and mixing the lacquer. After I had been mixing for about 10 minutes, the stick I was mixing with got stuck and the bowl started to heat up!

This was due a chain reaction. When mixing too much epoxy for too long, the heat caused by the reaction starts to accelerate the reaction, which in turn creates more heat.

Eventually, the bowl was burning hot and smoking, and I threw it out the back door straight into a snowdrift!

The result was a stone hard lump of lacquer and a bad mood for wasting expensive products.

The lacquer is meant to be gel-like to get the desired layer of a couple of millimetres thick with one stroke. When the lacquer is laid, let it dry for about 15 minutes. While drying, part of the lacquer usually flows to the deepest dent of the mould. You can thicken it with a small portion of TIX. Sprinkle some dust on the lacquer seam and mix in on thick with the brush, so you can paint it onto the vertical parts.

Note: If you have some leftover lacquer mix in the pot, it's worth thickening with TIX and brushing on the inside of the stone. It will only go to waste otherwise.

Let the mould dry overnight and then gently touch the surface of the lacquer. If the lacquer is sticky, let it dry some more. If it feels hard, you can peel it off the cast. It's easier if you start with the edges and peel them off gently so the stuck lacquer won't crack or damage the mould. After peeling off the edges you can pull the cast off the mould like you would peel a banana.



Remove the mould from the artificial stone: start with the edges and peel back gently.



Finished stones.

Let the stones dry for another week so that the lacquer will be completely dry.

The stones shown are the only examples I've tried so far, but with the same technique you can make hiding places from a tree trunk or copy the surface of a large rock for a background.



The artificial stones form a rock wall background for the Tanganyikan biotope in mind. It would be very risky to use this much rock if they were real stones.

These instructions are based on my own experiments and they can be adapted freely by anyone. Who knows, by experimenting you might even make improvements!

Finally I would like to thank my family for their understanding

Note: Sikatop Seal is a cement-based product so a newly-made stone will raise the conductivity and GH in the tank uncontrollably. I tested this by filling a 40 l (10 gallon) tub with new stones and an internal filter to keep the water flowing.

After 24 hours, I measured conductivity and GH. Conductivity was up from 40 μS to 650 GH and μS rose from nearly 0 to 7. Tanganyika water! I emptied the tub, filled it with fresh water and measured again after 24 hours: about 300 μS . Malawi! Third filling: conductivity 120 μS . After the fifth filling, the stones didn't affect the values.

After this operation, all that can dissolve from the stones has dissolved and they are safe to put in the tank.

(a bloke messing around all night with brushes and epoxy in the bathroom is not particularly the ideal image of a balanced husband and father), Sari and Joel for translating this article and Suomen

Akvaarioliitto (Finnish Aquarium Association) for inviting Sune Holm to give us tips and leading me to the path of experimenting on how to make natural decorations for our aquariums. 🌿

The NEC's 32nd Annual Convention

March 16 - 18, 2007 • Marriott Hotel • Farmington, CT

Make plans to attend the Northeast Council of Aquarium Societies annual convention in March. As usual, the NEC will host the Aquatic Gardeners Association from 2:00 - 4:00pm on Friday. Come and meet with your fellow AGAers! Jeff Senske of Aquarium Design Group will present a Serious Plant Talk at the Friday afternoon AGA meeting!

On Saturday there will be a bunch of great speakers on a wide array of topics, including another presentation on aquascaping titled, "Designing the Natural Aquarium" by Jeff Senske. Jeff will also give an aquascaping demonstration following his talk and they are planning to raffle off the aquascape.

Of course, Saturday night will be the Banquet and another great presentation. This year's banquet theme is "Wearin' O' the Green," which fits right in with our little green corner of the hobby.

The Auction on Sunday will be huge, and while there will certainly be a lot of fish, I'll bet we'll see some plants in there, too!

The NEC website at www.northeastcouncil.org has more information and registration forms for the hotel and convention to download. If you have any questions, please contact David or Janine Banks at dbanks@together.net or (802) 372-8716; or Penny or Al Faul at pennyfaul@yahoo.com or (978) 534-3683.