

## Life Casting

As part of my graduate studies at UNC School of the Arts, I have to publicly publish part of my thesis. I chose to research mold making and casting for theatre, and step I had to take to build some of my projects was make a life cast of my friend's face. In this Instructable, I tell you what you need to make the life cast, and how to do it safely.

### Here is a list of materials you will need:

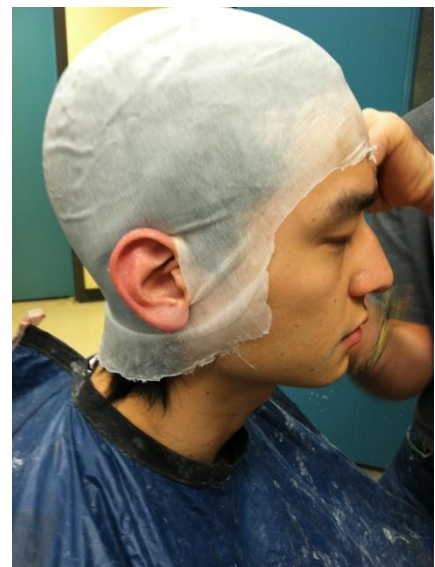
- **An extra set of hands- NEVER** perform a life cast of the face without help. One person always needs to be responsible for clearing the model's airways with popsicle sticks and checking in with them from time to time to make sure they are doing ok. A clear thumbs up, thumbs down code should be established. If you are doing a full head cast, you will need two helpers: one on nose duty, and someone to mold the back of the head while you mold the face.
- Alginate- an organic material, I have never heard of people being allergic, but if they are severely allergic to shellfish, it's not a bad idea to do an allergy test on a small patch of skin before covering their entire face. Always have more on hand than you think you will need . A face cast uses about two and a half cups of alginate, and a full head cast uses about five.
- Plaster bandages- pre-cut these so you can use them easily. You should have some pieces ripped to about 8" and more at 18".
- Mixing buckets- one for the bandages and one for the alginate.



- Popsicle sticks- you should have many on hand to clear the model's airways, discard each popsicle stick after it has been used, you want to ensure a clean air passage.
- A bald cap OR plastic wrap and packing tape.
- A hair cutting apron to lay over your model.
- Water- You always want to have more alginate than water, so if you have two Solo cups of water, you need three cups of alginate on hand. The water should be tepid. You will also need to use tepid water for the plaster bandages, but that bucket can be filled after the alginate has been applied.
- A box with a soft cushion in it to hold the alginate and plaster mold once it is removed from the face.

How to life cast and create a plaster replica:

1. Before your model arrives, prep your work station. You should have all of your materials easily within reach, with your plaster bandages pre-cut.
2. Prep your model by pulling hair away from their face; men need a clean shaven face.
3. If you need to cast the whole head, apply a bald cap. Otherwise you can use tape and plastic wrap to create a smooth surface over the hairline; you can always sand down the ridges that will occur in the plaster later.



4. Apply Vaseline® to the model's eyebrows and eyelashes. It is unlikely that the alginate will pull out hair, but it can put the model at ease.
5. Measure out the tepid water for the alginate in the Solo cups and transfer to the mixing bucket.
6. Add the alginate to the bucket by quickly sprinkling it into the water and vigorously mixing it with your other hand. Time is of the essence.
7. Add enough alginate to achieve a consistency similar to toothpaste. Too thick and it will trap air bubbles and cure too quickly; too thin and runny, it will cure slowly and be difficult to build up to the proper thickness.



8. Once the proper thickness is achieved, begin by smearing a walnut size amount of alginate into the recess between the eye and nose on both sides of the face.-This is where air bubbles most frequently occur. **BE SURE YOUR ASSISTANT IS PRESENT AND READY BEFORE YOU BEGIN!**
9. Work your way outwards in quick, controlled movements, as your assistant on nose duty watches for drips obstructing the model's airway.
10. Cover around the nose last; utilize your assistant and have them use popsicle sticks to smooth around the nostrils.



11. You should have a thickness of at least  $\frac{1}{4}$ ". Any thinner than that will be difficult to remove from the face without ripping.

12. The moment the alginate starts to set up- indicated when it ceases to be smooth and starts to take on a crumbly texture- STOP and move on to the plaster bandages. (If you try to continue, it will damage the mold)

13. Fill the second bowl with tepid water. Start to wet and apply the plaster bandages over the alginate. You want to fully cover all of the alginate, with a plaster rope X over the nose and around the perimeter of the face as extra reinforcement. If you are doing a full head cast, you will need to apply the bandages in two parts with a large amount of Vaseline® in between the two pieces.

14. Once the plaster has been applied and it is only damp, not wet to the touch, you can begin the demolding process:

15. Have the model lean forward with their hands on the plaster, supporting it.



16. Tell the model to start making small movements: wrinkle the nose, pucker lips, frown, as you begin to separate the alginate from the face with your fingers. It will peel away fairly easily. Be sure to keep the alginate and plaster together as best you can.

17. When the mold is released from the face, place it in a box filled with something to cushion it, such as packing peanuts, foam or bubble wrap. Make sure the alginate is properly fitted in the plaster jacket.

18. You can begin the plaster filling process as your assistant helps the model get cleaned up.

After the mold is removed from the face, you should immediately begin to mix the Ultracal 30 to fill the mold. You don't need to rush, but the alginate will start to shrink irregularly as soon as it cures, so it is not ideal to wait to fill the mold.

When you mix Ultracal, remember when you fill your mixing bucket with water, it will double in volume when you add the cement. It is better to have too much mixed up than too little, but you also don't want to be wasteful.



1. Peel out the cured alginate from your bucket and fill it with tepid water to the desired level.
2. Add the Ultracal by sprinkling it onto the surface of the water. It will sink to the bottom of the bucket. Add cement until you have a small island in the water.

3. Mix for 2-3 minutes with a mixing attachment on a drill. Stop and check for any chunks that still need to be broken up by hand. (The material will be strongest if a mechanical mixer is used, but you can mix by hand).
4. Pour the mixture slowly onto the inside surface of the mold, just as you would pour beer down the side of a glass. This helps avoid air bubbles. You could also pour a small amount of the cement into the mold and use a brush to smooth it in, but I feel that in this circumstance, attempting a beauty coat is unnecessary if it is poured properly.
5. The cure time will depend on the size of the piece, but generally a face cast takes about half an hour before you can remove the alginate and plaster jacket, and a head cast takes about an hour. You should wait a full 24 hours before you begin to sculpt on the plaster, allowing it time to fully cure and harden.

