

LifeCasting Arts Technical White Papers

Working with LifeCAST™ Gypsum Cement



LifeCAST is a fine grained, white gypsum cement with a strength rated at approximately 8500 psi.

There are several issues that must be addressed when mixing LifeCAST:

1. Water/Powder Ratios
2. How much stone do I need for my job?
3. How do I mix the LifeCAST?
4. When is the LifeCAST set enough to work with?

1. Water/Powder Ratios

POURABLE MOLD:

For a “pourable” mold, such as a hand cast” a thinnish mix is recommended. Too thick and the entrapment of air bubbles and voids in the mold is very difficult to avoid. Too thin and the stone will not set with adequate final strength.

Measuring by Weight:

We have found that a good pourable mix is in the ratio of approximately 2.3 to 1 (powder weight to water weight).

Measuring by Volume:

If you must measure by volume instead of by weight use approximately 2.6 parts powder to 1 part water.

LAYUP MOLD:

For any type of layup mold, you will need two different mix viscosities. For the initial coating use the thinnish, pourable mix described above. For the second and possibly third coats, use a thicker mix.

Measuring by Weight:

The thicker mix should be about 2.6 to 1 (powder weight to water weight).

Measuring by Volume:

Volumetrically that would be approximately 3 parts powder to 1 parts water.

2. How much LifeCAST do I need for my job?

HAND CAST:

Remember, it’s better to mix more than you need than not have enough during the pour-up.

Hands come in all sizes. The bigger the hand, the more LifeCAST will be required. For reference, an average sized adult male hand (including 1 inch of wrist) takes up approximately the same volume as 16 fl. oz. of water. This means that you will need 16 fl. oz. of a LifeCAST mix to fill it.

This is important: LifeCAST when mixed “thinnish” (2.3 to 1) is about half water and half stone by volume.

What that means is that for any given volume, you will need to use approximately 1/2 of that volume of water. For the average male hand, you would need about 8 fl. oz. of water and 18.4 ounces of powder (or 1 cup water and two cups LifeCAST (by volume)). Two hands may take a little more than twice because of the space between the hands needs to be filled.

FACE CAST:

In general, a face cast doesn’t require very much LifeCAST, but for best results, we’ve found that two coats of LifeCAST produces a better results than just one coat. Use a “thinnish” mix (2.3 to 1- powder to water by weight, or 2.6 to 1 powder to water by volume) for the first coat. This will smoothly coat the alginate and trap fewer air bubbles than a thicker mix. Then use a “thicker” mix (2.6 to 1- powder to water by weight, or 3 to 1 by volume) for the second (and possibly third) coat.

A typical face cast should require about 1.5 pounds of LifeCAST and should be about 1 inch thick.

HEAD CAST:

Use a “thinnish” pourable mix. A solid head cast will require between 10 and 20 pounds of LifeCAST. Bigger heads and casts with more neck/shoulders will require more. It is possible to do a series of thin “slip coats” inside the head mold to produce a hollow casting, but this is a more advanced technique than pouring a solid casting.

TORSO CAST:

A torso cast should be poured in multiple coats with the first one being the “thinnish” mix. A second “thicker” coat is applied is then applied. Many people apply a third coat of LifeCAST and embed strips of burlap in the third coat. This gives the shell a little extra strength and resistance to cracking. A typical torso cast (neck to navel takes between 6-10 pounds of LifeCAST and should be about 1 inch thick.

3. How do I mix the LifeCAST?

For small amounts (less than one pound), a simple bowl and spoon (or rubber spatula or whisk) works very well. For larger amounts, you may want to use a power mixer. A power mixer is an electric drill with a “paint-mixer” attachment on it. These attachments can be purchased at hardware stores, paint stores or home improvement centers. Mixing LifeCAST in this manner is very quick and easy. You will need to clean up your tools before the LifeCAST sets. Have a bucket of water ready and after mixing, quickly run the paint mixer attachment in the water to clean it off. Same goes for any spoons or whisks you may have used.

DO NOT POUR ANY STONE DOWN YOUR SINK OR TOILET. This is important because the stone will sink to the lowest place in your drain system and it WILL set there. This could cause costly plumbing bills. LifeCAST is non-toxic so you can pour the rinse water into the ground.

4. When is the LifeCAST set enough to work with?

LifeCAST achieves its first initial set in about 15 minutes. At one hour, you can carefully unmold a hand cast if you are careful, but its better to wait 3 hours. LifeCAST will achieve 99% of its ultimate strength after 24 hours. If you are planning on painting your LifeCAST sculpture, it must be completely dry or the water will come out THRU your paint job (bad). If its dry and hot out, 3 days is enough. If its humid, wait 5 or 6 days. In the winter, wait at least 4 days before painting. Do not let a wet sculpture freeze.

5. What kind of paint can I use to color the LifeCAST sculpture?

Krylon makes quite a few metallic spray paints that work very well. Try mixing colors- like light bronze for the fingers fading to dark bronze for the hand, fading to gloss black at the wrist. Do not apply the paint thick as it will fill in the details. Gold and white paints especially easy to over-apply and can quickly fill in all the details on your sculpture. Bronzes are beautiful, coppers can be good, brass must be used with caution, silver can be used with other colors, and antique golds can be really pretty. You can just apply a clear coat to your sculpture to protect it from dirt and skin oils, but NEVER use a clear coat on metallic paint as it immediately kills the metallic effect.

Acrylic paint from the tube can be applied thinly to create nice effects. People have used paste waxes, shoe polishes and various teas to produce beautiful effects.