

**Silica is very bad for you to breath. Wear your respirator when handling it dry.
A good respirator will be rated for asbestos.**

You can get silicosis from fine silica dusts. Imagine thousands of tiny samurai swords getting lodged in your lungs. One day you start coughing up bubbly mucus and before you know it there is blood in it and you are in trouble. Silicosis cannot be treated only prevented.

Step 1: Secure your Positive to a mold board. (The board should be somehow sealed from moisture) If you are using a wax positive seal it to the board by meting the edges with a soldering iron, you can also use clay around the edges or underside to keep it in place. For clay make sure it is making good contact with the board. Spray waxes with hairspray.

Step 2: Either create a structure to contain the mold material (coddles/mold boards) or outline the positive with a permanent marker if you are hand building. If you are using coddles make sure you seal the edges of the boards with clay. If you have a leak you can just put dry plaster on the seeping area.

Step 3: Mix the dry ingredients for the investment.

1 to 1 by weight pottery plaster to silica (325 mesh) = stronger mold at room temp

1 to 1 by volume pottery plaster to silica (325 mesh) = stronger at high temp (handle with care)

Step 4: Calculate the amount of investment needed (do some math) or eyeball it. Fill your bucket with water that looks like 2/3rds the amount of material you will need for a 3/4 inch coating over the positive.

Step 5: Sift in dry mix.

By volume = 1 part water to 2 parts dry (may require less dry if a very small mold)

By weight = 1 part water to 1.5 parts dry

Making sure all the dry is submerged, let the mixture slake for 1-2 min. This allows the water to surround all the particles of the dry mixture making the investment a better consistency.

Step 6: Mix the investment. Try to add as little air as possible. Make sure you break up all the lumps as you go. Any super hard bits should be removed. If you have a ton of hard lumps it means your plaster got wet and won't set properly. Discard the mix and the plaster.

You want the investment to be able to coat your fingers evenly over the pads but lighter in the crevices. If too thin keep mixing, the agitation helps the mixture begin to set.

Step 7: Pour your investment. You can pour directly over the piece but make sure you do it gently and coat the entire surface without creating bubbles otherwise you will damage/change the surface of the positive. Once the surface is covered pour into the side of the mold box. Once done pouring agitate the table to bring the bubbles up

If you are hand building get a good face coat on right away and wait for the investment to set up a little(a very little) before adding further layers.

Step 8: Wash out your bucket. Let the mold set up at least till it has warmed and cooled a bit from the plaster setting up.(30-40 min or so) Pull off the coddles and twist the mold off of the board. Seam the edges of the

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mold to make it comfortable for handling. Pick out the clay, taking care not to scrape the surface of the mold. If you used wax you should steam it out.

Step 9: Place the glass over your mold (in a flower pot) or fill it with glass. When you fire the glass you need to allow extra time for the moisture to escape. Hold the firing at 200 degrees for an extended period then go up to temp slowly.

Be careful of how you discard your plaster silica waste. For extra mixed investment scrape it out of the bucket and let it set up. Once set you can just throw it away. For your wash-out bucket pour of the clear water on top once it has settled. Repeat a couple of times and then put the bucket in the sun till you have a dry-ish block or at least a thick paste scoop it into a bag and toss it.

Dumping the waste down the drain is the quick way to seriously clogged pipes and large plumber's bill. If you have a plaster trap in your sink (lucky you) make sure you clean it out every now and then.

Some possible investment mixtures:

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1st coats

(Measured by weight)

50 % Pottery plaster 50% 325 Mesh Silica 6% EPK Kaolin (strong mold at high temp)

Water to dry 1 to 1.5

50% pottery plaster 50%325 Mesh silica 6% Talc (weaker mold at temp for the interior of hollow castings)

Water to dry 1 to 1.5

2nd Coats

50% pottery plaster 50% 325 mesh silica up to 1/3 part grogg (usually 6% is enough you can also add Kaolin to the mix to increase it's strength)

Water to dry 1 to 1.5

50% pottery plaster 50% 325 mesh silica + a hand full of fiberglass fibers (fiberglass is super itchy wear rubber gloves when mixing and handling the mold)

Water to dry 1 to 1.5

1st and 2nd Coat

50% plaster 30% silica 10% Alumina Hydrate 10% china clay

Water to dry 1 to 1.5

For all large molds (exceeding 8 inches in any direction) you should add a cage of chicken wire between the first and second layers.