



















## MIXING PLASTER FOR CERAMIC MOLDS




### Materials:

-  Use a dust mask and goggles
-  Have on hand 2 buckets, one for mixing plaster, one for water and cleaning off
-  Plaster of Paris (do not use industrial grade plaster, it can be too dense for absorption of clay slip when poured.)
-  Boards or plastic containers for mold form, clay and mold release agent (like dishsoap), clamps or nails,
-  Object for casting
-  **Before Mixing Plaster:** Prepare your mold. For a two part mold, set the object to be cast halfway into a bed of soft clay. Secure the boards around the object. Fill all joints with soft clay so that plaster cannot run out of mold form. **DO NOT RE-USE THIS CLAY FOR ANYTHING OTHER THAN PLASTER CASTING** - Discard used clay into garbage after use. Coat all surfaces with a release agent (liquid soap).

Water volume = 2/3 volume of what you want around object.

-  SIFT in plaster quickly, but don't lump. **ALWAYS ADD PLASTER TO WATER**, Never water to plaster.
-  Small islands form with cracks when there is sufficient dry plaster added into the water.
-  About 2/3 water to 1/3 plaster ratio
-  Soak plaster/water mixture about 3 minutes
-  You will have about 20 - 30 minutes until plaster sets up completely. 15 minutes if plaster/water mixture is too agitated, or if too much dry plaster is added.
-  Don't agitate mixture too much - avoid creating air bubbles
-  Use your hands to mix to a thick cream consistency. The plaster will warm up due to a chemical reaction as it starts to thicken.
-  Trails will form by arm in mixing motion.
-  Thump bucket gently on floor or on sides of container to assist air bubbles to rise to the surface.
-  Pour over mold, making sure that the plaster does not splash about, or create air bubbles. Tap the mold container gently to help air bubbles to rise to the surface.
-  Let the plaster set up before removing the containment materials.
-  Don't put the mold near heat sources to dry. Plaster sets up in a chemical reaction. Let it set up naturally.

## IMPORTANT!!

-  **DO NOT PUT PLASTER DOWN SINKS - DISPOSE OF IN A GARBAGE CAN - IT WILL FORM INTO A SOLID LUMP AND COMPLETELY BLOCK DRAINS**
-  **DO NOT RE-USE ANY CLAY USED TO SEAL OFF CASTING FOR ANYTHING OTHER THAN MORE PLASTER CASTING**
-  **IF PLASTER GETS INTO YOUR CLAY IT CAN EXPLODE WHEN HEATED - MIX ALL PLASTER IN THE OUTDOOR SCULPTURE AREA, AWAY FROM THE CLAY STUDIO**

## MIXING YOUR OWN SLIP

Start off by reviewing mixing instructions and be sure to have all equipment and pre-measured materials ready to go before you start. The following formula shows the typical amounts of various materials for a 100 lb. (10 gallon) mix.

|                  |   |                  |
|------------------|---|------------------|
| Dry Casting Slip | 100 lbs.  | 50 lbs           |
| Barium Carbonate | (60 grams - 2 oz.) dry weight                   | 30 gms           |
| Soda Ash         | (30 grams – 1oz.) dry weight                    | 15 gms           |
| Sodium Silicate  | 3 1/2 - 4 liquid oz. (diluted 50/50 with water) | 1.75 - 2 oz.liq. |
| Water            | 5.1-5.4 gallons                                 | 2.5 - 2.7gallons |

## Cone 6 Porcelain Clay Slip

Flint 10.0

Ball clay 20.0

Kaolin 20.0

Nepheline Syenite 48.0

Talc 2.0

Water 36.0% of dry amt

Soda Ash 0.05-.1% of dry amt

Sodium Silicate 0.05-.2% of dry amt

or

Water 36% of dry amt

Darvan No. 7 0.5% of dry amt

This [recipe](#) is much less plastic than ceramic slip but has a faster casting rate. It will deflocculate to 1.8 specific gravity also and will fire to produce vitrified ware that is extremely strong and durable. It has a long firing range and can produce ware of excellent translucency with a clean ball clay.

## Recognizing Under Deflocculation

If the slip is gelling after a few minutes or livering while mixing, more deflocculant is probably needed.

Be careful not to add too much; this is a common mistake and will mean you will have to make more of the powder mix and add it and more water to counterbalance the oversupply of deflocculant. If the slip does not settle out overnight, then you can rest easy, it is not over deflocculated.

If the slip has not thinned after an addition, then there is already enough present. Sometimes a very small addition of water will thin the slip dramatically.