

CLAY REVIEW



What is clay?

Clay is a naturally occurring material composed primarily of fine-grained minerals, which show plasticity through a variable range of water content, and which can be hardened when dried and/or fired.

What are its uses?

From prehistoric times, clay has been used in art, architecture, industry, and agriculture.

- brick, either sun-dried (adobe) or fired.
- manufacture of tile for wall and floor coverings.
- porcelain, china, and earthenware forms for pipe for drainage
- used in foundry work molds and preparing the molding sands for casting metals.
- used in the oil industry, e.g., as filtering and deodorizing agents Industrial uses such as purifying sewage
- Used as pottery as either earthenware, stoneware or porcelain

In art, there is no difference between ceramics and pottery. Both denote the basic 4-step creative process of

- (1) **forming** (ie. Shaping, carving or sculpting);
- (2) **firing** (baking in a kiln);
- (3) **glazing/decorating** (coating the object with a glaze, or applying to it various decorative techniques);
- (4) **Refiring** (rebaking) to harden the glaze.

This four step process must be learned in order to work effectively with a clay medium.



Clay bowl in leatherhard stage- this was created on a pottery wheel and then hand sculpted

Hand-built coiled pot- one of the oldest forms of pottery



STEP ONE - FORMING

In order to prepare the clay for any type of sculpture, it must first go through the process of wedging.

WEDGING: wedging is the process of kneading the clay to line up the clay molecules and remove any air pockets from the clay. If clay is not wedged properly it will not survive a firing in the kiln because the moisture of the clay will turn into steam

and build up in any air pockets

that are in the clay causing the clay piece to break or explode in the kiln.



Clay that has not gone through a firing is called **GREENWARE**



Once your clay is properly wedged, you can begin to roll it out to a consistent thickness. For large scale work it is best to use a press, but for smaller pieces of clay, a rolling pin will work just as well.

An important point to note here is to watch the **Plasticity** of your clay. Plasticity refers to how wet and malleable the clay is, the more it can be manipulated the more plastic it is. If your clay starts to wrinkle and crack, add small amounts of water with a spray bottle to increase plasticity.



Once the clay has been **wedged** and rolled out, you can carve out your image, or design.



If your design requires two pieces of clay to be joined together, the pieces have to be **slipped** and **scored** in order to become part of a whole

Slip- liquid clay the consistency of white glue that is used to join two pieces of clay together.

Score- the process of carving lines into the clay to prepare for a joining or adhesive.



The drying process of clay needs to be monitored and controlled. After about 12-24 hours of being left uncovered, clay is called **Leatherhard**.



Leatherhard clay is cool to the touch and is slightly lighter in colour than wet clay. It is a good time to add any finishing touches to your carving, but major changes aren't recommended at this time. Clay at this stage is NOT dry enough to be put into the kiln.



After about one week, the clay will become Bone Dry. **Bone dry** clay is clay that has been dried to a completely dry state. In this stage, the clay is very fragile, non-plastic and porous. This is the only state of greenware clay that should be fired,

If you wish to work on a clay piece over a period of time and retain the plasticity, you must **ALWAYS** keep your clay airtight by wrapping it in saran wrap or an airtight ziploc bag. Clay, once it reaches leatherhard cannot be reverted to become more plastic without disintegrating. Any sculpting or carving would be lost! Also, when you are carving, make sure you allow for **Shrinkage**.

As clay dries, it reduces slightly in size.

The reason we must dry the clay slowly and monitor the drying process is to minimize shrinkage, warping and cracking.



STEP TWO – THE KILN FIRING

The kiln is a special kind of insulated oven that is used to fire the clay. The kiln reaches extremely high temperatures (up to 2500°F) and should only be used and operated by a trained professional.

During this process, chemical and physical reactions occur which cause the clay to be permanently altered. Once the greenware has been fired once it is called BISQUEWARE.

Bisqueware can never become plastic again even when mixed with water as its state has been changed permanently.





Bisqueware in kiln after first firing



Studio full of bisqueware pottery.

Step Three - Glazing

Glazing is a process that is used to add colour, pattern and decoration to a clay piece. Some people mistakenly refer to glaze as paint. It is essentially "liquid glass" or glass particles (mixed with colors or pigments) that have been ground down. Glaze melts at a high temperature and turns into the coatings that you see on a finished pottery piece.

When you put glaze on bisqueware you will notice that it dries very rapidly and appears chalky. This is because the bisqueware is porous and takes in the water from the glaze. The glaze does not show its true colours until it has been fired in the kiln. The chemical composition of the glaze changes when heated therefore the colour you apply to the clay may not be the colour you see after the glaze firing. It is very important to apply several coats of glaze to your bisqueware and ensure that each coat is applied smoothly and evenly. Uneven glaze coats do not look good!



Unfired glazed pieces will not look like their final state. They are often chalky in appearance and texture. Once they are fired, the glaze fuses to the clay and becomes one with the clay piece. Glazeware is a permanent chemical process that cannot be undone once it has been fired.

Clay pieces in kiln after a glaze firing





Examples of glazeware tiles and a glazed pinch pot with legs that have been slipped and scored on before the first firing!

After a glaze firing your clay work is finished. The finish can either be matte or glossy depending on the type of glaze you've chosen to use!





Pewabic tiles