



ALL CATEGORIES



FIRING

KILNS AND FIRING



COMPARE PRODUCTS

Torch firing Stove top Kiln Sitter Kilns

Precious Metal Clay or Art Clay can be fired in any furnace that will sustain the required temperature with reasonable stability. Almost any kiln with a pyrometer, like those used for burnout or enameling, will work. The kiln should be located away from combustible surfaces and plugged into a properly wired socket so that its cord cannot be snagged or tripped over. It's helpful to have work gloves, long-handled tongs and a heat-resistant surface like a brick in front of the kiln to set work on when it comes out of the kiln.

Firing PMC	Centigrade	Fahrenheit	Hold Time
Standard Silver PMC	900	1650	2 Hours
New 22k Gold PMC	900	1650	10 Minutes
Silver PMC+	900	1650	10 Minutes
or..	850	1560	20 Minutes
or..	800	1470	30 Minutes
Silver PMC3		1290	10 Minutes
or..		1200	20 Minutes
or..		1110	30 Minutes

We sell a programmable kiln that maintains a selected temperature for a set length of time, then shuts off automatically. Though not essential for success with Precious Metal Clay or Art Clay, this unit is designed specifically for silver clay and makes the firing process as foolproof as the modeling.

SHRINKAGE

When Precious Metal Clay or Art Clay is fired, the water and binder vaporize and disappear completely. Because these together make up about 30% of the original Precious Metal Clay or Art Clay, the object after firing is reduced to about 70% of its original size. This offers exciting possibilities because the shrinkage is proportionate. All the images, textures and details you create in the clay original will be retained in the final version--Only smaller! This is a little like using the reduction button on a photocopier and nearly as easy. PMC+ has a higher metal content. Fired PMC+ pieces are 88% of the original size.

FIRING [TO SEE KILNS CLICK HERE.](#)



As the following chart describes, shrinkage, density and hardness all increase with time and temperature. That is to say, if you "short fire" Precious Metal Clay or Art Clay you will make it weaker. The longer the firing process the denser the metal, achieving maximum at the durations shown below.

Firing at temperatures above these risks melting the material-it's real metal and will melt just like conventional metal when heated to its melting point. Pieces may be fired any time after they are made, though pieces with widely varying cross sections should be dried slowly to prevent cracking. Flat pieces are laid directly on a kiln shelf, fire brick or clean soldering pad and set directly into the kiln. Work can be very close together as long as the pieces don't touch each other. Contoured or hollow pieces require a little more care to ensure that they don't slump or collapse during the process. Support these forms on vermiculite, or alumina hydrate powder, available from us. It can be reused almost indefinitely so a couple of pounds should be enough for most studios.

STEPS IN FIRING

Set the completed Precious Metal Clay or Art Clay object on a heatable tile, cradling it in a bed of alumina hydrate if the form is other than flat (middle drawing above).

Set the tile into the kiln on bits of brick that lift it off the floor, facilitating both heating and removal of the object.



Program and start the kiln or, if firing manually, turn it to a high setting. Precious Metal Clay or Art Clay does not need to be vented, though when other materials are included (like cores), ventilation may be necessary.

If you have a manual machine: When the pyrometer indicates that the correct temperature has been reached, turn the dial back slightly to ensure that the temperature does not go higher. Check the clock and maintain this temperature for at least two hours. There is no disadvantage in heating the work longer. When many pieces or a sagger box is used, a longer time is recommended to ensure complete fusion. When the time has passed, turn off the kiln.

Silver Precious Metal Clay or Art Clay pieces will look white, and gold work will be an orange-brown; neither will look metallic yet. The work can be quenched in water for immediate inspection unless stones or other non-metal embedded objects have been used, in which case the work should be air-cooled. Properties of Silver Precious Metal Clay

PROPERTIES OF SILVER PRECIOUS METAL CLAY

*after firing

	PMC	PMC+	PMC3	PMC PRO	Artclay
Workability	excellent	slightly stiff	excellent		excellent
Shrinkage	25-30%	10-15%	10-15%	15-20%	8%
Firing Temp. & Time	1650 for 2 hours	1650 for 10 min. 1560 for 20 min. 1470 for 30 min.	1290 for 10 min. 1200 for 20 min. 1110 for 30 min	1 hour @ 1400F in carbon	780/1435o F and above - hold time 5 minutes - (n to exceed 900/1650o F) 700/1290o F - hold time minutes 650/1200 o F - hold time minutes
Strength	pretty good	very good	very good	2x PMC3	very good
Available types	Clay	Clay	Clay Syringe slip-paste	Clay	Clay Syringe slip-paste
Uses	pendants	rings pendants	rings	Rings,	rings

brooches	bracelets	charms	buckles,	charms
charms		pendants	clasps,	pendants
beads		bracelets	knives	bracelets
			spoons...	

Torch Firing PMC+ by Tim McCreight



A compact, handheld butane torch will fire PMC+.

Get used to torch firing with this experiment.

For the record, it has always been possible to fire Precious Metal Clay or Art Clay with a torch. The hard part was finding someone to hold a torch for two hours! With the creation of PMC+ torch firing became a viable option. As we know, PMC+ is converted into solid silver when heated to 1650° F (900° C) for 10 minutes. At this temperature, even at a few minutes less we can make solid silver jewelry.

Jewelers use a variety of torches, all of which deliver more heat than is needed to fire PMC. People with experience in metalwork and a good idea for heat colors will be able to fire PMC+ with any traditional torch. If a person is buying a torch specifically to fire PMC+, a butane torch like the Blazer makes a good choice. These compact torches are relatively inexpensive and are available from us. In fact I even saw one at a kitchen supply company where it was sold to caramelize crème brûlée. The torches are sold empty and filled (and refilled as needed) from a can of butane that can be bought from the same suppliers, grocery stores or tobacconists. Note that the standard torch is rated at 2000° F so it can melt PMC. Another interesting torch uses a disposable cigarette lighter as the source of fuel. These clever torches are inexpensive but are limited to only very small items.

TORCH FIRING PROCESS

1. Allow the work to dry overnight or drive off moisture with a hairdryer, coffee warmer or in a slow oven. Torch firing is not recommended for large items.
2. Place the work on a soldering block or fire brick, which is in turn set on either a fireproof surface or something that can be singed (like a piece of plywood). If you

are working on the kitchen counter and the piece rolls off the block you don't want to scar the countertop.

3. Light the torch and hold it so the flame is nearly vertical with the tip of the cone about 3/4" away from the work. Within a minute the piece will be enveloped in a soft flame as the binder burns away. The flame will soon go out by itself. Within another minute the piece will start to glow red. Continue heating until this becomes a bright and luminous color. At this point, glance at a clock.
4. Hold this color as uniformly as possible for at least 5 minutes (10 minutes will produce a denser result) glancing away periodically to relieve your eyes. When the time is up, turn off the torch and allow the piece to cool at least until the red color is gone, at which point it can be quenched.

EDUCATE YOURSELF

Here's a test I recommend to anyone who intends to fire with a torch. It takes a few minutes and requires the investment of a dollar or two in PMC, but it will go a long way toward understanding the process and building confidence. Pull off a peanut-sized bit of PMC+, split it in half, and roll out two small rods. Follow the instructions above with one added step. After the complete cycle, move the rods apart on the brick so you can focus on one of them. Concentrate the flame on this rod in an effort to melt it, which might be possible even with the regulated torch. You'll see a bright mercury-like skin form on the piece and the red color will become even brighter. The edges will start to curl and the PMC will be drawn up into a ball.

Make a mental note of what you saw and this way you'll know the signs of melting so you can withdraw the torch in time before damaging a piece you care about. To complete the experiment, allow the other rod to cool and test it by bending, filing, burnishing and polishing. This will confirm that, sure enough, torch firing really works!

STOVE TOP FIRING

Directions for Gas Stove Top Firing

1. Position a **stainless steel mesh** over the gas burner, turn on the burner and note where the mesh glows red the brightest, that's where you will put your small dry piece.
2. Turn off the burner and place the PMC3 or Art Clay 650 piece on that spot that glowed the brightest.
3. Turn on the burner **LOW** and watch for the binder burning out (smoke).
4. When the smoking stops turn up the burner until the silver clay turns red (turn off the lights to see it better).
5. Set the stove's timer for 10 minutes.
6. Be Careful the mesh and silver is **HOT!** Cool as normal.
Make sure the silver clay is as dry as possible. Don't try this with very large thick pieces or large stones. If the silver clay glows bright orange turn the stove down.

FIRING IN A POTTERY KILN

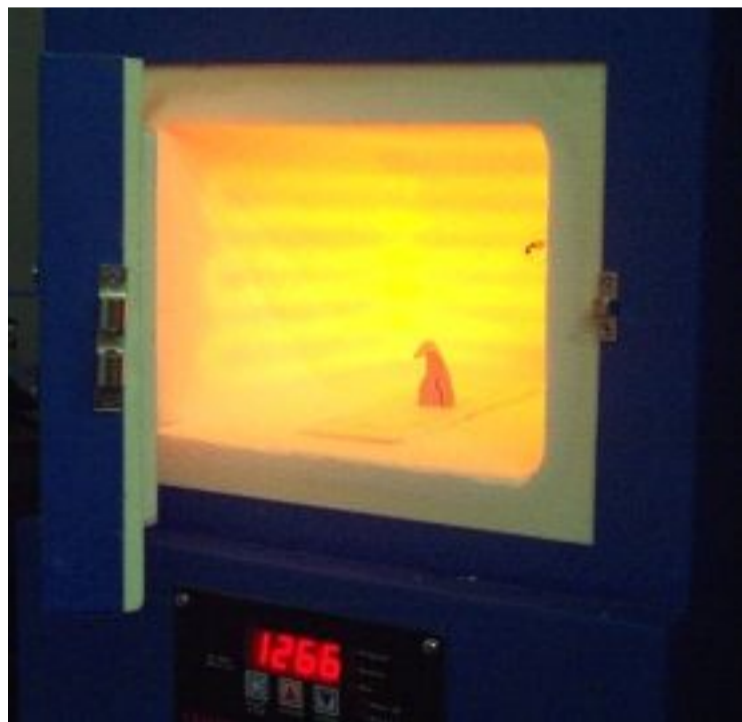
Q. How do you fire Art Clay Silver in a cone sitter kiln?

Low fire clay fires to 1200 F which corresponds to cone 019-020, the highest recommended firing temperature of all silver is 1650F or cone 010-011. Ceramic kilns fire much slower than jewelry kilns so the actual hold time is not too important.

For PMC3 or ArtClay 650 fast fire to cone 017 no hold time needed. (Fire on High until the cone turns off). let cool as long as you can wait.

For regular art clay or PMC+ use cone 014. 011 is the hottest possible cone for the most durable item. (Actually if your rate is 585F in the last 200 degrees then cone 020 works out to 1201F if you want to get technical) but we need a no hold time temp to fire to. Don't try to fire PMC original if you have no way to hold for 2 hours.

Place the silver-clay on a kiln washed shelf right under the cone setter. That way the cone is measuring the temp right at the silver-clay. All of these suggestions relate to computerized kilns too if you cant figure out the ramp and hold programming. Don't worry about the cost of firing a large kiln it is about \$1.00 per hour.



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