

Firing Metal Clay Silver with Torch or Gas Stove Top

Whether using a torch or gas stovetop, the Metal Clay Silver piece must be 25 grams or less in weight and the size of a fifty cent coin or smaller in diameter. Why?? Keep the following points in mind.

1. **AREA.** Maintaining the piece at less than 25 grams does not take area into consideration. Theoretically 25 grams of clay could be rolled out to the size of a plate. Similarly restricting the diameter without restricting the weight could result in creating a ball the size of a fifty cent coin that weighs 50 plus grams. In both examples, firing would result in failure and wasted silver.
2. **DIAMETER.** Diameter must be restricted because the ability to heat the piece completely and maintain the sintering temperature throughout the firing time, is imperative to success. If it becomes necessary to wave the torch back and forth over the piece, some areas of the piece will cool whilst others remain hot. For success, all parts of the piece must be heated equally.
3. **WEIGHT.** A Metal Clay Silver piece that weighs more than 25grams will not react uniformly during the sintering process. The outer surface will heat and sinter more rapidly than the centre. By the time the centre begins to heat and sinter, the outer surface will heat past that stage. The result will be distortion with inconsistent shrinkage and the piece may begin to melt before the centre is correctly sintered.

OTHER IMPORTANT CONSTRAINTS

PAPER types of Metal Clay Silver cannot be flame fired where the main component is paper clay. This is specialty clay that requires no firing and is used in origami forms. However small pieces of paper clay attached to other dried, unfired Metal Clay Silver, may be fired by torch or gas stove top. The reason this works is because the main piece heats first and then the paper clay begins to warm and sinter.

CORK CLAY. Metal Clay Silver formed around cork clay cannot be flame fired. Cork clay requires slow heating that allows the cork to burn away to ash. It smoulders in the kiln because all the oxygen has been exhausted. Firing the piece in the open air would create a fire hazard and the silver would be damaged by the increased heat.

BENEFITS OF FLAME FIRING

The most obvious benefit is – it is inexpensive. Using a torch or gas stove top is a fraction of the cost of purchasing a kiln. It is also fast. In less than 6 minutes your Metal Clay Silver piece is done. A small electric kiln can take 20 minutes or up to 2 hours to reach firing temperature.

Torch Firing

Equipment List

- Torch, with appropriate fuel
- Firing brick, either compressed ceramic fibre or kiln brick
- Metal or glass pan
- Safety goggles
- Tweezers
- Timer

Check your torch first to make sure it has enough fuel for the cycle. It is very frustrating when the fuel runs out in the middle of a project! Have all the equipment you will need at hand. Put on the safety goggles.

1. Place the unfired METAL CLAY Silver piece in the middle of the firing brick. Light the torch and direct the flame at the piece.
2. Hold the torch at a 45 degree angle and 5cm from the piece. You will see a small amount of smoke and flame as the binder's burn off. This is quite normal – DO NOT pull the torch away but hold it steady. As soon as the binders have burned off the piece will turn white. This too is normal.
3. Continue to hold the torch on the piece until you begin to see the piece glow. ** When the colour reaches peach/salmon/coral, begin to time the sintering cycle based on the table below. If the colour of the piece deepens beyond peach or salmon. Increase the distance from the torch to the piece. If the glow fades or disappears, decrease the distance to the piece until the glow returns. If the surface of the piece begins to look too shiny or you see small sparks, IMMEDIATELY increase the distance to the torch as the piece is nearing melting point.
4. At the end of the sintering cycle, turn off the torch and set it in a safe place. Use the tweezers to move your newly fired piece to the edge of the brick. Allow the piece to cool completely.

STOVE TOP FIRING

Equipment List

- Gas Stovetop
- 15 x 15cm Stainless steel mesh
- Safety goggles

- Tweezers
- Timer

Place the stainless steel mesh on the grate over the stove top burner. Ensure it is laying flat and is stable. If possible dim the lights. Put on safety goggles.

1. Turn on the gas to the highest setting. Allow the mesh to heat. Study the mesh; look for the hottest areas which will be bright red in colour. Turn the burner off and allow the mesh to return to its original colour.
2. With tweezers, place the unfired ART CLAY Silver piece on one of the areas that was the hottest. Turn on the gas again to its highest setting.
3. Keep watching to make sure that the binders burn off and that the piece glows appropriately (** as described in Torch Firing). Adjust the flame if necessary. When the proper glow is reached, fire for a further 5 minutes.
4. After the cycle is completed, turn the gas burner off and leave the piece untouched for at least 20 minutes. Allow it to cool completely before handling.

TIMING – VERY IMPORTANT TO GET IT RIGHT!

When firing with a torch, the length of time necessary to hold the peachy/salmon glow of the Metal Clay Silver piece is dependant on the weight of the piece. There is some flexibility with EXTENDING the firing time (between 5 to 15 minutes) BUT decreasing the firing time is not recommended.

Firing Chart

<u>Weight – Grams</u>	<u>Time – Minutes</u>
1 – 5	5
6 – 10	6
11 – 15	7
16 – 20	10
21 – 25	10-15