

# About Metal Clay

Many types of metal clay are made from precious metals and base metals. GVR's Lapidary and Silversmith Club offers *silver* metal clay classes.

Silver Metal Clay consists of molecular particles of silver suspended in an organic binder. The clay can be molded, textured, and sculpted into various shapes for making jewelry, beads, and small sculptures. The Club's metal clay instructor will teach about essential tools, construction techniques, refining, firing options, and finishing processes. Each participant takes home their dangling earrings, a pendant, a few charms, or other creations. Beginners and those wanting to refresh or enhance their metal-clay skills are welcome. What if a participant has some metal clay experience? In that case, they can learn to join wet or dry clay pieces to give their creation depth, roll the perfect texture, add a bail, embellish their work with syringe clay, include cubic zirconia or dichroic elements, and more.

As safety is primary, best practices are to wear close-toed shoes, don an apron, and wear eye protection, especially when working with electric equipment and solutions. It is essential to be heat and fire safety conscious, too.

There are six steps in the metal-clay creation process.

1. Design
2. Construct
3. Refine
4. Fire
5. Finish
6. Assemble — Wear, Gift, or Sell

# 1 Design

Because metal clay is similar to ceramic clay, designs can involve texturing the clay using organic materials, manufactured texture mats, and everything in between. One can make a unique texture using silicone molding material. Paper-cutting machines offer yet another customization.

Textures and imprints can be deep or shallow. Layers of metal clay can be stacked or placed to give one's piece more dimension and depth. How to join clay is addressed under Construction.

One can carve metal clay when it is wet or dry. The only limit is one's imagination, carving geometric shapes to mini-scenes, characters to animals, and symbols to signs.

Templates for cutting circles, rectangles, hearts, or any other shape work, as well as free-hand drawing the perimeter. Making one's own templates further customizes creations.

One of the exciting qualities of metal clay is that it shrinks when fired — up to 26% — depending on the brand of clay. One can construct a piece working on a manageable size and then be delighted when the tiniest details become even more minuscule.

If the piece is a gift to oneself or another, one can customize it during the design step.

Considering all this, it is good practice to visualize its design well enough to draw the piece and make notes. An artist's sketchbook allows for saving graphics and descriptions for future reference. Looking back to earlier pages, one can track and experience the reward of artistic progress.

## 2 Construct

After the design is clearly in mind, the critical question will be, "How will I construct this." Because of certain qualities of clay, the piece itself will determine the order of steps and logistics of the work ahead. Not infrequently, the design is impossible to construct, and some elements must be changed.

During the construction phase, one makes their piece, which may involve cutting out clay, allowing that to dry, refining parts, adding more cut pieces of clay, allowing them to dry, and so forth. As one makes more metal clay pieces, one learns it is best to work on two or more creations simultaneously to avoid waiting during the drying.

The construction step is when the artist adds embellishments such as cubic zirconia, specific synthetic stones, and dichroic glass. A decoration could also be the backplate or bezel for later setting a cabochon that would not otherwise tolerate the firing process.

Construction includes setting eyelets, adding bails, refining embellishments, checking symmetry, and more. Bring the piece to its finished look even though it is still dry clay.

At the end of the construction phase, dry the creation well. Drying can be accelerated using a coffee-mug warmer, hair dryer, tepid oven (less than 120 degrees Fahrenheit), food dehydrator, or sitting out at room temperature for half a day.

## 3 Refine

Oddly enough, how finished and beautiful the creation will look depends heavily on this step. Refine means to file, sand, carve, and improve the piece's appearance and function, making subtle and precise changes.

The most common refinements are drilling holes, beveling the edges of holes, sanding the straight or curved edges, beveling those edges, removing burs and

ridges from carved areas, sanding out any cracks or imperfections, and further deepening certain areas so they stand out more. Never disregard the back of the piece and refine it as well.

If one can't refine a piece entirely in this step, one may be able to refine a particular area further using flexible shaft tools and attachments after it has been fired.

## 4 Fire

Metal clay is fired to remove the organic binder and remaining moisture. During the firing step, the silver in the piece sinters, whereby the silver molecules come closer together and coalesce into a tighter solid phase.

There are two firing methods: torch fire and kiln fire. Each brand of metal clay comes with an insert with the firing specifications.

Torch firing results in less sintering, resulting in less strength, and is successful in pieces that require less stress or durability. Earrings, pendants, charms, or other pieces up to about 10 grams can be torch fired. Not all clay brands can be torch fired, so investigate this beforehand. A butane torch is ideal for torch firing; an oxygen-acetylene torch can be too hot.

Larger and more complex pieces containing fireable elements, such as cubic zirconia or dichroic glass, are kiln fired. Bracelets and rings shall be kiln fired for the most strength and durability.

After either firing process, the piece will look like white chalk. The surface has towers and crystals of silver that capture light instead of reflecting it. Brass brushing lays down the silver, which allows the silver to appear and reflect light.

If the piece needs curving or flattening, this is the step to use a rawhide mallet or dapping block.

After brass brushing and shaping the piece, a stint in a tumble with steel shot and burnishing solution will work-harden the piece and make it more reflective.

## 5 Finish

The most significant decision in the finishing step is whether or not to patina the piece. Patinas are oxidizing agents, and the most common on the market are Liver of Sulfur, JAX, and Black Max. Liver of Sulfur is slow; JAX and Black Max are instant. Use them with an exhaust fan because the fumes are unhealthy or toxic.

Neutralize any patinas by dipping the piece into a super-saturated solution of sodium bicarbonate, which is baking soda.

Stopping a Liver of Sulfur patina at a particular stage can result in a gold, blue, or rainbow color patina. Alcohol inks, waxes, and even colored pencils are a few ways to add color to the piece.

The next decision is what kind of finish enhances the piece best and the corollary determination of how much of the patina one will remove.

Finishes range from mirror shiny to matte or without a shine. Typically, a mirror shine leaves a darker patina and a soft matte results in a lighter patina.

Finishes determine the tools one uses to achieve them. Tools include a flex shaft with various accoutrements and a buffing wheel with rouges and polishing compounds.

Patina and finish are personal preferences. Sometimes, the piece itself suggests the patina and finish that allows it to appear its best.

A finishing step may or may not include setting cabochons. It depends on the design and desired appearance. For example, if one wants a rough, matte finish, one must avoid sandpaper or a coarse polishing disc that would mar or dull the stone.

Another step may serve the piece well: tumbling it again in a burnishing solution. Burnishing removes a little patina and puts a final shine on the piece, so if the creation has a matte finish, do not tumble.

Finally, burnishing the high points and edges with an agate or steel burnisher can add a little bling or sparkle to a piece.

## 6 Assemble — Wear, Gift, or Sell

Assemble the piece of jewelry by putting earrings on ear wires, adding O rings where needed, hanging a pendant on a necklace, soldering on additional elements, setting cabochons, and doing whatever it takes to complete the piece.

Ear wires and chains or necklaces match the piece best when patinated and finished along with and similar to the piece. For example, a rustic, matte earring looks out of place on a brand-new ear wire fresh out of its package.

Here are some questions to consider. Have you made this piece for yourself? Have you made it as a gift? What will you wrap or present it in if you are gifting it? Or are you planning on selling it? Will you place it on a display card? How will the display card align with the brand you are developing? Have you researched how to price your work for wholesale, retail, and consignment?

Arts councils and other organizations offer programs to help artisans and artists create a sustainable enterprise, grow skills, and develop a strong brand suited for the desired artistic and business niche. And, of course, GVR Lapidary and Silversmith Club offers its members well-equipped facilities, educational activities, and classes.

## Resources

The following is list of metal clay suppliers for clay, tools, and specialty items put together in 2023. Ask other metal-clay artisans where they buy their supplies, and there will be at least a dozen more.

[AMCAW \(Alliance for Metal Clay Arts Worldwide\)](#)

[Art Clay World](#)

[Clay Revolution](#)

[Cool Tools](#)

[Metal Clay Alchemist](#)

[Metal Clays dot Com](#)

[Metal Clay Findings](#)

[RioGrande](#)

[Silver Clay dot Com](#)

Kris Kramer, the current metal clay instructor, has posted numerous YouTube videos on her website exclusively for the GVR Lapidary & Silversmith Club. View them here — [Kris Kramer Designs Video Vault](#).

The [Lapidary & Silversmith Club](#) has a selection of books and DVDs, many of which are on metal clay.

## **Lapidary & Silversmith Club Class Tools**

The Lapidary & Silversmith Club supplies these tools for use during class. These are the property of the club. More tools are available to borrow upon request or as their need arises during classes.

Each canvas pouch contains the following.

1 Piece of Card Stock	4 Rolling Slats — White, Wood
1 Pencil	1 Paper for Sketching
1 Pointer Tool on Eraser	1 Emery Board
1 Scalpel	2 Small Mirrors
1 Bamboo Brush	1 Piece of Glass
1 1 mm Drill Bit	1 Bur Bit
3 3M Sanding Sponges (3 grits)	
1 Paintbrush	1 Smoothing Swab
1 Plastic Wrap	1 Agate Burnisher
1 Roller	1 Spray Bottle (Water)
1 Olive Oil or Slik or other release agent	
1 Teflon Squares	1 Plastic Coated Papers
1 Catch Tray (Card Stock)	~ Bunch o' Hand-wipes
1 Air-tight Container which you can take home	



## **Lapidary & Silversmith Club Facility Tools**

One can purchase specialty tools like those listed below for their studio and workspace. However, they are available when one becomes a Lapidary & Silversmith Club member and takes the appropriate classes to use these tools. These are only a few tools often used to finish metal clay creations.

Metal Clay Kiln

Flex Shaft

Steel Shot Tumbler

Buffing Wheels

Soldering Equipment (does not include silver, solder, or flux)

Rawhide Mallets and Hammers

Dapping Block