



Creating with

COPPRclay™



COPPRclay™, Art Clay Silver, and BRONZclay™ necklace by Judi Weers

**Techniques,
instructions,
and tools for
designing with
COPPRclay™**



Brought to you by
Art Clay World USA

Welcome to COPPRclay™!

COPPRclay™ is easily sculpted, molded, carved and formed, and becomes solid copper when fired. Your imagination and just a few simple tools will allow you to create solid copper pieces – from jewelry to sculptures, and everything in between!



COPPRclay™ Floral Cuff
Created by Katie Baum



COPPRclay™ Clownfish
Created by Julie Mueller-Brown

Copper—Then and Now

Copper was used by even the oldest civilizations on record, dating back over 10,000 years. Copper artifacts and jewelry found in the Middle East have been dated back to 8,700BCE. In the earliest cases, the copper items were mined and pounded, hand-worked into shape. By 500BCE there is evidence of smelting. Copper artifacts have been found worldwide, used for currency, adornments, burial ornaments, trade, tools, even plumbing.

Copper metallurgy developed historically at different rates and for different purposes across the globe. The ancient Greeks and Romans began using lumps of copper as currency, but soon progressed to coins. Copper was associated with the mythological goddess Aphrodite/Venus, likely due in part to its lustrous appearance and uses in producing mirrors and ornate jewelry. Copper was used in the creation of Corinthian Bronze, which formed the gates of the Temple of Jerusalem, made by depletion gilding.

Multiple ancient civilizations even used copper as a medical remedy: the Egyptians used it to treat wounds, headaches, and burns; the Aztecs gargled with copper to cure sore throats. In early India, copper was the substance of choice for surgical instruments. By the 1700s, copper sheathing protected ships' hulls from algae and boring organisms. Copper became a metal of choice for sculptors and statue-makers; the Statue of Liberty is mostly copper.

Today, while copper technology has come a tremendous way from ancient methods, it is still used for the same reasons. We still turn to copper for jewelry, decoration, tools, and household use (consider your electrical wiring.) Fortunately, COPPRclay™ now makes creating with copper user-friendly; the tools and items needed to successfully use COPPRclay™ are easily accessible, affordable, and certainly less intimidating than what our ancestors used. Enjoy!

Suggested Tools for Use with COPPRclay™

Like other clays, COPPRclay™ can be formed, molded, sculpted, and shaped using your own hands, and just about anything else you can find lying around.

Standard Tools

Necessary for any project, these are the basic items:

- Portable, hard working surface
- Thin non-stick surface
- Rolling tool
- Spacers (slats or playing cards)
- Small paintbrushes
- Cocktail straws
- Measuring tool (ruler, tape)
- Craft knife
- Small file set
- toothpicks
- Burnishing tools
- Tweezers
- Rubber block



File sets provide options for engraving and shaping. Art Clay World, USA carries two sizes of files to suit your preference.



Textured COPPRclay™ and Silver Earrings
Created by Pam East



Flexible texture sheets create crisp and elegant designs. Art Clay World, USA offers dozens of texturing and molding options.



Molded COPPRclay™ Link Bracelet
Created by Jackie Truty

Specialty Tools

These tools may be beyond the basics, but they are still easy to find and great to have available:

- Specialty-tipped shaping tools
- Clay sculpting tools
- Rubber stamps
- Silicone texture sheets
- Tissue blade or ceramic scraper
- Magnification lenses
- Specialty shape cutters (like fondant or small cookie cutters)
- Patinas
- Specifically-shaped brushes
- Gemstone-setting tools/burs
- Mandrels (ring, bracelet)
- Hand drill/pin vise
- Engraving tools
- Extruders
- Embossers
- Tumbler

Suggestions When Working with COPPRclay™

COPPRclay™ is just that: a clay. Like clay, it's highly workable but it also dries quickly. You'll notice the clay stiffening and cracking when it begins to dry. Some tips to keep in mind:

- When not in use, keep the clay tightly wrapped in plastic and place the wrapped piece in a sealed plastic bag for added protection. Store all unopened packages (as well as opened packages) of COPPRclay™ in a refrigerator when not in use. **NOTE:** After prolonged exposure to air, COPPRclay™ will develop a black surface. Scrape away this black layer until you reach the useable clay, which will be unaffected and ready to use.
- Rub a dab of olive oil on your hands before you begin working with the clay.
- While working the clay, refresh it periodically with a small amount of water using a spray bottle or brush.
- Sculpt pieces of clay together well with moist clay; thin slip does not work as well.
- Wrap pieces that you are not currently working on in plastic and place it to the side.
- Avoid using tools that absorb water (i.e. wood or other porous materials).
- Use COCONUT carbon only with COPPRclay™, as the activating washes for other types of carbon can be detrimental to the copper sintering process.

Embellishments for COPPRclay™



COPPRclay™ and CZ Earrings
Created by Katie Baum

Because of the firing requirements for COPPRclay™, it is not a good fit for firing natural gemstones in place. Some Cubic Zirconia may work well; speak with your supplier of CZs for their general firing capabilities. However, if you desire to set natural gemstones, you will need to get creative with pre-formed settings or bezeling wire.

COPPRclay™ is a great candidate for any embellishment added after firing, including resins and enamels.



COPPRclay™ and Larimer Pendant
created by Judi Weers



COPPRclay™ and Enamel Pendant
created by Pam East

Making Slip

Slip will quickly become one of your favorite tools for working with COPPRclay™, and it's easy to make. Simply mix tiny pieces of clay (filings, small dried or wet pieces, etc.) with water (we recommend distilled water for a longer shelf-life) until you reach a toothpaste consistency. Keep your slip stored in a sealed container. **NOTE:** Slip will last for about one week, so only make enough for your immediate need.

Slip is typically used to seal seams, provide texture, and connect pieces of dried clay. This extra-moist clay is also essential when mending cracked or damaged pieces. For the best connections between pieces of COPPRclay™, it is still best to really sculpt moist clay bits together for the strongest attachment.



COPPRclay™ Leafy Ring
Created by Katie Baum



COPPRclay™ Starfish
Created by Margo Ray

Drying COPPRclay™

Once you've finished your piece, you will need to dry the clay before firing it. Like any other metal clay, the moisture needs to be completely removed to avoid generating steam within the piece, which would push outward and cause pocking and damage to the piece during firing.

Gently place the piece on a warming surface such as a coffee mug warmer (ACW #F-247) or the top of a kiln (be careful to keep pieces away from the kiln's vents). A food dehydrator (ACS #DH-05) works well, too. Once COPPRclay™ is fired, it's much more difficult to finish, so the more pre-finishing work you can do, the better. The dried "green" stage is the best time for smoothing, filing, sanding, drilling, carving, and engraving.

COPPRclay™ shrinks a total of about 20% from package to finished product—keep this in mind as you create your pieces. The first bit of shrinking will occur as the clay dries.



A candle or mug warmer makes the perfect drying tool.. (ACW #F-247)

Firing COPPRclay™

To reduce oxidation, the pieces(s) must be surrounded by activated coconut carbon (ACW #BZ-004 or BZ-005) during firing. Firing COPPRclay™ is a multi-step process that uses low heat to vaporize the binder, then high heat to sinter the metal.

1. Spread 1" of activated **coconut** carbon granules on the bottom of a stainless steel firing container (ACW #BZ-003).

2. Place the piece on top of the layer; if firing two or more pieces, leave at least ½" between pieces, more if the pieces are large. Do not try to put more work in the pan than space really allows, as this will only risk the proper firing of the pieces.

3. Pour more activated carbon granules on top of the pieces until the container is full, making sure there is a ½" layer of granules on top of the pieces. Again, if you are firing many pieces in layers, make sure there is at least ½" of space between the vertical layers as well.

4. Put the stainless steel lid on the firing container and place it in the kiln on stilts/kiln posts to allow for heat circulation. **NOTE:** Front-loading kilns are cooler in the front near the door, so the front of your firing container will be cooler than the other sides. Compensate for this by placing the pieces closer to the sides and back of the firing container, making sure you leave at least 1" of space between the pieces and the front of the firing pan. If you have a top-loading kiln there's no need to adjust. If you are using a smaller kiln and don't have enough space for true kiln posts, at least get the pan off the kiln floor with trimmed fiber board.

5. COPPRclay™ is still so new—there are slight variations on the temperatures and the swiftness with which pieces should be fired. The following directions have been supplied by Dragon Glass, the South African Distributor for metal clay, with their express permission.

To Fire COPPRclay™ in your electric, digitally programmable kiln:

Part A: Open Shelf Firing

i. Place pieces, spaced well, on fiber board or fiber blanket. Ramp the kiln 482°F per hour up to 720°F and hold for 60 minutes. Pieces can be moved or transferred as soon as you care to handle them with stainless steel tweezers/tongs. (Note that this is when the pieces are most fragile. Consider waiting until cool enough to move work with your fingers, as your fingers are generally more gentle than metal tools.)

Part B: Oxygen-Restricted Firing

i. Pack pieces into activated coconut carbon as described above.
ii. Ramp 662°F per hour to 685°F and hold for 90 minutes.
iii. Without stalling or cooling, ramp up 1022°F per hour to 1544°F, and hold for 165 minutes.
iv. Allow the firing pan and pieces to cool before handling. Finish as desired.



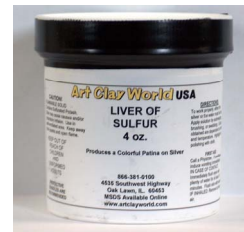
COPPRclay™ must be fired submerged in activated coconut carbon inside a firing pan.



Making it easy: The COPPRclay™ Combo Kit from Art Clay World, USA (COP-03) Included: 100g COPPERclay™, firing pan, and 2lbs coconut carbon.

Finishing COPPRclay™

Once fired, the COPPRclay™ piece is a solid piece of metal. As with other fired metals, it can be sawn, drilled, sanded, patinated, or soldered using traditional jewelry tools and materials. Keep in mind that many finishing techniques will be easier to perform at the dried, pre-fired stage.



Liver of Sulfur can be used to create a rainbow of color on finished copper pieces. (ACW F-037)



Leaving COPPRclay™ “au natural” - as copper ages, it naturally oxidizes.
COPPRclay™ Bell created by JoAnn Sartorius



COPPRclay™ Attached Bail Pendant
Created by Katie Baum



COPPRclay™ Texas Rose Pendant
Created by Judi Weers

Safety

The binder in COPPRclay™ is non-toxic, and no toxic fumes will be present during firing. Though rare, it is possible for some individuals to experience some skin sensitivity to COPPRclay™. We recommend wearing a dust mask while working with the activated carbon. Please see the MSDS for COPPRclay™ for more specific information (available at www.artclayworld.com and upon request from Art Clay World, USA.)

Metal Adventures Presents

COPPRclay™



COPPRclay™ and enamel
pendant created by Pam East

COPPRclay™ **is now**

brought to you by
Art Clay World USA!

**Contact us for all your metal clay
needs: silver, gold,
bronze, and copper!**

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