

Your Guide to



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 because COPPRclay is pure copper, it's great for those artists who enjoy applying enamels (note the required firing requirements on back).

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:

- Keep COPPRclay™ refrigerated until you're ready to use it and in between sessions.
- 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.
- Wrap pieces that you are not currently working on in plastic and place to the side.
- Avoid using tools that absorb water.
- 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.

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 make only enough for your immediate need.

Drying the Clay

Once you've finished your piece, you will need to dry the clay before firing it. Gently place the piece on a warming surface such as a coffee mug warmer or on the top of a kiln (be careful to keep pieces away from the kiln's vents); an inexpensive vegetable dehydrator works well, too. Once dry, you'll notice the clay is leather hard, making it very easy to add finishing touches such as filing, drilling, sanding and carving. Once COPPRclay is fired, it's much more difficult to finish, so take advantage of this pre-fired stage to do as much of your detailed finishing work as possible.

Firing

To reduce oxidation, the piece(s) must be embedded in coconut shell-based activated carbon (Rio #703-205) during firing. **Important:** Some coal-based carbons may not fire COPPRclay properly; we recommend using coconut shell-based activated carbon.

Firing COPPRclay™ is a two-step process that uses low heat to vaporize the binder, then high heat to sinter the alloy.

- 1) Spread 1" of coconut shell-based activated carbon granules on the bottom of a stainless steel firing container (Rio order #703-202 or #703-206).
- 2) Place the piece on top of the layer; if firing two or more pieces, leave at least 1/2" between pieces, more if the pieces are large.
- 3) Pour more activated carbon granules on top of the pieces until the container is filled 1" from the top, making sure

there is a 1/2" layer of granules on top of the pieces. Again, if you are firing many pieces in layers, make sure there is at least 1/2" of space between the vertical layers as well. **Note:** Do not fire more than 100 grams of clay at once; overloading may cause poor sintering.

- 4) Put the stainless steel lid on the firing container and place it in the kiln on stilts to allow good 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.

For COPPRclay™ pieces that will not be enamelled:

Regardless of thickness (embedded in coconut shell-based activated carbon): Ramp at full speed to 1700°F–1800°F (927°C–982°C) and hold for 3 hours (total firing time, including ramp-time, will be about 4 hours). Most firings perform well at 1700°F. However, if you discover that your pieces are not sintering properly, try firing them at 1800°F. **Please Note:** Blistering may occur at 1800°F; if this occurs, slightly decrease the firing temperature.

For COPPRclay™ pieces that will be enamelled:

Follow the two-phase firing schedule below if you plan to enamel your piece.

Phase 1 (open-shelf fire)

For pieces 3mm thick or less: Place the piece directly on the firing shelf. Ramp at 500°F/hour (278°C/hour) then hold at 560°F (293°C) for 15 minutes.

For pieces thicker than 3mm: Place the piece directly on the firing shelf. Ramp at 200°F/hour (93°C/hour) then hold at 560°F (293°C) for 15 minutes.

Phase 2 (sintering)

Regardless of thickness: Embed the piece in coconut shell-based activated carbon inside a firing pan. Ramp at full speed to 1750°F (954°C) and hold for 3 1/2 hours. Allow the piece to cool naturally inside the kiln.

Finishing

Once fired, the COPPRclay™ piece is a solid piece of metal. As with other metals, it can be sawn, drilled, sanded, patinaed or soldered using traditional jewelry tools and materials. For a brown to black patina we recommend using MIDAS® Brass, Bronze & Copper Oxidizer (#331-043); for a green patina, try MIDAS® Green Patina (#335-120). Keep in mind that many finishing techniques will be easier to perform at the dried, pre-fired stage.

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 sensitivity to COPPRclay™. We recommend wearing a dust mask while working with the activated carbon. Please see an MSDS for COPPRclay online at copperclay.com.



COPPRclay™ cuff bracelet created by Patrik Kusek



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