

## Cinter™ Metal Clay Firing Instructions

For photos, mixing instructions and more, please visit the Cinter Metal Clay page at [threenatures.com](http://threenatures.com)

### Step 1: Burn out the binder

Arrange pieces on a 1" bed of activated acid-washed coal carbon in a stainless steel metal bowl or firing pan. Leave at least ½" space between pieces. Avoid the very center of bowl since that is the coldest spot in the kiln.

Choose option A or B:

A. **Camp stove or cook top** (recommended method – it is much faster!)

Cover the bowl with a vented lid (an aluminum foil pie plate with holes punched in it works great) and place on a camp stove (outdoors only) or gas cook top (good ventilation is a must). Turn stove up to medium-high or high heat. After 5 minutes or so, you'll see smoke. After it stops smoking, turn off the heat and let cool. The pieces should be dark with a layer of oxidation at this point. Total time for this step is about 10 minutes.

B. **Kiln**

Cover the pieces with a 1" layer of carbon. Place the bowl in kiln on kiln posts. Ramp kiln at full speed (1800F) to a temp of 1000F and hold for one to two hours, depending on the size of your pieces. The bigger and thicker the pieces are, the more time is needed to burn out the binder.

### Step 2: Sinter

Let the bowl cool after completing Step 1. Cover the pieces with 1-2" carbon (or just add a bit more carbon if you choose option B) and place the bowl on kiln posts inside the kiln. Ramp at full speed (1800F) to the suggested sintering temperature for the metal you are using (see below). Hold for 1.5 to 2.5 hours, depending on size of pieces. Err on the side of caution and hold for a longer time period – it won't hurt smaller pieces but helps ensure larger pieces sinter properly.

**Bronze: 1470-1530F**

**Copper: 1600-1750F**

The above temperatures are suggestions only. There is no substitute for firing a test batch in your kiln each and every kiln fires differently. Typically brick (top loading) kilns hold heat a bit better than muffle (front loading) kilns. Start testing bronze at lower temp since it is easy to refire under-sintered pieces, but impossible to fix melted pieces. It is unlikely you'll melt copper pieces.

After program is complete, let kiln cool. Take off the kiln lid and wait until the temp has dropped to a safe temp before removing the bowl. Blow away any ash from the top of the bowl. The rest of the carbon may be reused. Once cool, you can burnish, polish, tumble, sand, patina or otherwise finish your pieces!

### Troubleshooting

Symptoms: Pieces don't polish up nicely (powdery surface), or they break easily.

Problem: Not sintered enough.

Possible solutions:

- Increase firing temperature and/or hold time.
- Try a different brand or new batch of carbon.
- Make sure you do not contaminate your clay with aluminum, petroleum products, etc.

Symptoms: Bubbles or blisters form on surface.

Problem: Either clay was wet when firing began or the firing temperature was too hot.

Possible solutions:

- Make sure pieces are dry before firing.
- Burn out the binder more slowly in Step 1 (option A).
- Lower firing temperature in Step 2.

Questions? Email [cindy@gogoshebogo.com](mailto:cindy@gogoshebogo.com).

*Friendly reminders: Be safe when handling hot materials. Don't breathe in clay powder, smoke or carbon dust – just because it is non-toxic doesn't mean it is healthy. It is best to wear a dust mask when pouring or sanding. Have fun!*