



PROMETHEUS™ COPPER CLAY INSTRUCTIONS

What is PROMETHEUS™ COPPER CLAY?

PROMETHEUS™ COPPER CLAY (also known as **PCC™**) is a claylike material which turns into pure, copper metal when fired in the kiln.

It is a mixture of micron sized copper powder, water and organic binder. It can be formed by hand, rolled into a sheet or a rope. It can be moulded, textured and even turned on a potter's wheel.

PROMETHEUS™ COPPER CLAY can be fired with most laboratory created metal clay safe gemstones, pre-tested natural stones, glass beads, ceramic porcelain and also **PROMETHEUS™ BRONZE CLAY**.

PROMETHEUS™ COPPER CLAY is suitable for enamelling.

When **PCC™** is fired in a kiln, the organic binder burns away and what remains is pure, solid copper.

Brush it with a metal brush, if any fire scale remains - pickle it, and finally polish it.

You can create you own unique jewellery, ornaments, hollow ware, statues and other decorative objects with **PCC™**.

Working with PROMETHEUS™ COPPER CLAY

Working with **PCC™** is similar to working with **PROMETHEUS™ BRONZE CLAY**, silver clay, polymer clay, modelling dough, flour dough or ceramic clay. **PROMETHEUS™ COPPER CLAY** is soft to the touch and easy to use.

Wet Stage

Fresh **PCC™** does not stick to fingers or to plastic working surfaces.

Oiling your fingers and the working surface lightly is still recommended and will not harm or affect your clay. Olive oil is preferable for this purpose.

Remove the clay from its plastic package and place it on a clean plastic surface, Teflon sheet or waxed baking paper. Use your fingers, roller, spatulas, clay shapers, craft knives, tooth picks or other simple tools to shape it, texture it, or turn it on a potter's wheel. Texture the clay with rubber stamps, texture mats, leaves, embossed papers or any other interesting textures.

Try and keep the "**Wet Stage**" brief to avoid drying the clay out, but it is not necessary to rush.

PROMETHEUS™ COPPER CLAY allows you enough time to work comfortably. If you detect any cracks on the surface, apply water immediately with a brush or spritzer spray bottle. Fill in the cracks with a little paste* to repair them.

* To make paste, mix a little clay with a little water until it is the consistency of thick yoghurt.

To join two wet pieces together, simply apply some water to the edges that will touch, or add a little paste. If the two pieces are dry, wet the edges well, and then apply some paste, to create a secure bond.

Store any unused clay in a plastic zip lock bag to prevent it from drying out.

Immediately place any unused off-cuts in the bag whilst you are working, and keep it closed. If you're not planning to work with the clay for a while, put the sealed plastic bag in a jar with a tight lid. Placing a wet sponge into the bottom of the jar will keep your clay in good, moist condition, until your next usage. If you will be storing it for a long time, keep checking the moisture content of the sponge and add water if needed.

Drying

Before firing, you do need to dry your piece completely. A hair dryer or placing the piece on top of a kiln works well. Avoid the vent. Coffee warmers or food dehydrators are also suitable.

To check if the clay is completely dried, put it on a cold mirror while it is hot. After a few seconds, move it and check that there is no vapour on the mirror. This test is especially important for larger, thicker pieces. If the piece is not dried completely it may crack, break or have bubbles appear on the surface while firing. We recommend large and extra large pieces (statues etc.) should be left at room temperature to dry for some time. Continue drying at moderate temperatures, in order to avoid any cracks.

Dry Stage

Although dried PCC™ is stronger at this stage than the other metal clays, you still need to be careful when working with it. You can carve designs on the surface*, file it, grind it, drill holes with hand or rotary tools and engravers.

To join dried pieces together, wet the joints with a brush and then apply some paste. Dry completely, sand and add more paste if necessary.

* *Draw your design on to your piece with a pencil, wet the lines with a brush and then carve with any suitable tool or even a tooth-pick.*

After completing your design, it is easy to sand uneven surfaces, using sand paper and sanding sponges. It is a lot easier to do this finishing step now - before you have fired the clay.

Firing PROMETHEUS™ COPPER CLAY

Firing PCC™ you have 3 choices:

WRAPPING METHOD

After drying your piece, wrap it with one or two layers of paper towel, depending on the size of your piece. Larger pieces, for example a 200g. piece, will need 3 or 4 layers. Please note paper towels vary in thickness so you might want to do some simple tests to ensure the best results. If you use more paper than needed it will produce more smoke but it will not damage your piece.

Make a package, by wrapping the paper towel wrapped piece with a 4 or 5 mm thick ceramic blanket at least 2 turns. Don't leave any openings. You can pack more than one piece in the same ceramic fibre blanket but it is important to wrap each piece separately with paper towel.

- *Fire your pieces in a well ventilated space. Persons with lung or respiratory problems may be affected by the smoke created.*
- *Always use gloves and a mask when working with ceramic fibre blanket. Avoid breathing in ceramic dust, and wash hands thoroughly after working with the ceramic blanket.*

Put the package into a kiln that has been pre-heated to 850 deg.C* for 30 minutes.

Wait for the kiln to reach target temperature again before you start timing your firing. Most kilns are cooler near the front door, so place your pieces close to the back and sides of the heating chamber.

- *Always Use gloves, tongs, paddle and safety glasses when loading and unloading a kiln. Put hot pieces on a heat proof surface.*

As every kiln is slightly different, we recommend you to do a few test firings, keeping a detailed kiln log to create your own specific firing schedule.

Test your kiln's accuracy by firing a small piece of clay. Electric kilns may show slight deviations, due to their temperature control systems and isolations. You can fire at higher temperatures but this would result in a higher shrinkage rate.

Depending on your test results, you may raise the firing temperature by up to 5%.

When the firing is completed, take out the package, put it on a heat proof surface and wait for it to cool down before you un-wrap it. You can take it out of the package while it is still hot and quench it in water. *Beware of steam burns!* As a result of the quenching, most of the fire scale will be removed from the piece. To get rid of any remaining fire scale, leave the piece in a hot pickling solution for some time.

CONVENTIONAL METHOD *This method is recommended especially for large pieces; statues etc.,*

Place the dried piece (or pieces) on to a stainless steel mesh. Place it in to a kiln that has been preheated to 920 deg.C. Wait for the kiln to reach target temperature again and then start timing your firing for 30 minutes.

When the firing is complete, take out the piece, put it on a heat proof surface and wait for it to cool down.

Better still, quench it in water while it is hot and most of the fire scale will disappear. *Beware of steam burns!*

To remove any remaining fire scale, leave the piece in hot pickling solution for some time.

Most kilns are cooler near the front door, so put your pieces close to the back of the heating chamber.

CARBON METHOD

This is a 2-step-method.

Step.1 Place the dried piece (or pieces) onto a stainless steel mesh and place it in to a pre-heated kiln at 500 deg.C. Fire it for 10 minutes.

Place the mesh and piece/s on to a fire proof surface and let it cool down.

Step.2 Spread approximately 3 cm. of activated carbon onto the bottom of a steel container.

Place the pieces with a space of at least 1.5 cm between them. Fill the container with activated carbon, close the lid and put it into a kiln that has been preheated to 850°C. Wait until the kiln reaches the target temperature again and fire it for 90 minutes. When firing is complete, either leave it to cool down in the kiln or, carefully take it out and leave it on a heat resistant surface until it is cool enough to take your pieces out.

The alternative firing schedule is 800°C for 2 hours. This is the preferable schedule when **PCC™** (Prometheus Copper) is combined with **PBC™** (Prometheus Bronze).

d) Finishing PROMETHEUS™ COPPER CLAY

Brush your piece with a metal brush and if necessary, put it in hot pickling solution.*

After pickling, rinse the piece thoroughly with water and dry. This will give you a lovely warm red copper colour.

You can also use many different patina solutions to give you other colours.

* *We recommend* SPAREX Pickling Solution

Polish the piece with a burnisher, polishing papers, a tumbler or polishing motor.

Using polishing compounds can add extra shine to your work.

e) Safety Precautions

1. **PROMETHEUS™ COPPER CLAY** contains organic binder, water and copper powder. It is non-toxic, and does not contain any harmful chemicals. There have been no reports of allergic reactions; however, people with known allergies should always be cautious and use the product with care.

2. Fire in a well ventilated place or under a kitchen extractor fan. Firing large pieces, like sculptures is best done in a furnace using a smoke extractor.

3. Wear gloves and safety glasses, use long tongs and/or a paddle when loading and unloading a kiln.

4. Always place your hot pieces and tools on a heat proof surface.

The information in this Instruction Guide has been gained as a results of careful tests. However, no warranty is expressed or implied regarding the accuracy of the data. Since the use of this product is not within the control of the manufacturer Odak Arts, Hobby and Crafts Ltd., it is the user's obligation to determine the suitability of the product for its intended application, techniques and procedures. The consumer takes responsibility for all risks and liability for its safe use.

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Manufactured by ODAK Arts, Hobby and Crafts Ltd.