Prometheus Bronze and Copper Clay Information Sheet

Working with **Prometheus™ Bronze Clay** is similar to working with silver clays, polymer clays, modelling dough, flower dough and ceramic clays. It is very easy to use.

Wet Stage

- At normal consistency, **Prometheus™ Bronze Clay** does not stick to hands or plastic working surfaces. However, oiling your fingers and the working surface lightly is useful, and would not harm your clay. Olive oil is preferable.
- Remove the clay from its plastic bag and place it on a clean plastic surface or wax paper. Use your fingers, roller, spatulas, clay shapers, craft knives, tooth picks and other simple tools to shape it, texture it, or turn it on a potter's wheel. You can texture the clay with rubber stamps, texture mats, leaves, paper, and other interesting textures.
- When you work with the clay out of the packet it is called "The Wet Stage". Try to not work at this stage for too long, to stop your clay from drying out; but don't rush your work, **Prometheus™ Bronze Clay** gives you enough time to play. However, if you detect any cracks on the surface, apply some water straight away with a brush or spray, and fill the cracks with a little paste to repair them.
- To join two pieces together, simply wet the points that will touch, or add a little paste (to make paste, simply mix a little clay with a little water until it is the consistency of thick yoghurt). If the two pieces are dry, wet the touching points, and paste to create a secure bond.
- Store any unused clay in a plastic bag with a zipper to prevent it from drying out. Place any offcuts in the bag straight away whilst you're working, and keep it closed tight. 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 in the bottom of the jar will keep your clay in a good condition, until your next usage. If you are storing it for a long time, keep an eye on the sponge and add water if needed.

Drying

- Before firing the bronze clay, you need to dry it completely. A hair dryer or putting it on top of a kiln will do it well. Hot-plates or food dehydrators work well too.
- To check if the clay is completely dried, put the hot clay (straight from drying) on a cold mirror. After 10-20 seconds, move it and check that there is no condensation on the mirror. This test is especially important for big and thick pieces. If the piece is not dried completely, then it can crack, break or have bubbles on the surface while firing.

- We don’t recommend fast drying for large piece, as it may cause cracks. For these, it is recommended to leave them at room temperature for a few hours and then continue drying at moderate temperatures.

Dry Stage

Whilst the dried **Prometheus™ Bronze Clay** is strong, you still need to take some care when working with it. You can carve designs on the surface, file it, grind it, drill holes with hand tools or rotary tools and engravers. To join dried pieces, wet the joining points with a brush and apply some paste. After completing your design, it is easy to sand uneven surfaces, using sand papers, and sanding sponges. It is a lot easier to do this step now - before you have fired the clay!

You have 3 choices for firing PBC™:

1. Wrapping Method (*)

After drying your piece, wrap it with one or two layers of paper towel, according to the size of your piece. Larger pieces, for example a 200 g. piece, will need 3 or 4 layers. Please note paper towels vary in thickness so you might want to do some simple tests for the best results. If you use more paper than needed it will produce more smoke however, it doesn’t harm 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 blanket (***); just wrap each piece separately with paper towels.

(*) There is a demonstration video at www.proclays.com
(**) Fire your pieces in a well ventilated place. Persons with lung or respiratory problems may be affected by the smoke created.
(***) Use gloves when working with ceramic blanket, avoid breathing It’s dusts, and wash hands after working.

Put the package in to the kiln, pre-heated to 750 deg.C/ 1382 deg.F (*) for 30 minutes. Wait for the kiln to raise up to its target temperature again, then start timing your firing. Most kilns are cooler near the front door, so put them close to the back and sides of the heating chamber.

As every kiln is slightly different, we recommend you to do a few experiments, and keep a detailed kiln log, to create your own specific firing schedule (**) . You can fire at higher temperatures, however this would give you a higher shrinkage.
(*) Use gloves, tongs, paddle and safety glasses when loading and unloading a kiln. Put hot pieces on a heat proof surface.
(**) 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. According to your test results, you may raise the firing temperature 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 unwrap it or take it out of the package while it is hot and quench it in water. Most of the fire scale leaves the piece. To get rid of the rest, leave it in hot pickling solution for some time.

2. Conventional Method (*)

Place the dried piece (or pieces) on a stainless steel mesh and put it in to the pre-heated to 800 deg.C/1472 deg.F. (**) Wait for the kiln to raise up to its target temperature again, then start timing your firing for 30 minutes.

When the firing is completed, take out the piece, put it on a heat proof surface and wait for it to cool down or much better, quench it in water while it is hot. (***) Most of the fire scale leaves the piece. To get rid of the rest, leave it in hot pickling solution for some time.

(*) This method is recommended especially for large pieces;
(**) Most kilns are cooler near the front door, so put them close to the back of the heating chamber.
(***) Be aware of water vapour.

3. Carbon Method

This is a 2-step-method.

Step.1 Place the dried piece (or pieces) on a stainless steel mesh and put it in to the pre-heated kiln at 500 deg.C/ 932 deg.F,. Fire it for 10 minutes, place it on to a fire proof surface and let it cool down.

Step.2 Put approximately 3 cm. of activated carbon to the bottom of a steel container. Place the pieces with at least 1.5 cm space between each other and fill the container with activated carbon, close it and put it into the preheated kiln to 800°C / 1472°F. Let the kiln raise to the target temperature again and fire it for 90 minutes. When the firing is completed, either leave it to cool down in the kiln or, carefully take it out and leave it on a heat isolated surface until it is cold enough to take your pieces out. One other firing schedule is 800°C / 1472°F for 2 hours which is preferable when **PBC™** is combined with **PCC™**.

Finishing Prometheus™ Bronze 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 nice warm reddish bronze colour. You can also use many different patina solutions to give you other colours.

(*) Silver Prep can be used or some other pickling solution/acid.

Polish the piece with a burnisher, polishing papers, a tumbler or polishing motor. Using polishing compounds can give extra shine to your works.

ART CLAY NZ'S TESTING PROMETHEUS BRONZE CLAY RESULTS

Art Clay NZ trialled all 3 firing methods. The wrapping method and firing only on a wire rack fired well, however, there was fire scale and the final colour of the bronze clay was very 'copper like'. Our best results with regards to getting a great bronze colour were with activated carbon.

Use a small piece of stainless steel mesh and bend over the sides to make a rack to place your piece on. Turn your kiln on and allow to ramp up to 500oC. Place your piece on the metal rack, place in the kiln, allow the kiln to reach 500oC again and time for 10 minutes. After 10 minutes, take out your piece and allow to cool to a point where it is touchable again. Your piece will be black.

Using the stainless steel cup provided in the Prometheus Bronze/Copper Clay kit, place 3cm of activated carbon in the cup and then place your piece on top. Fill with another 1 ½ cm of

activated carbon and then place some fibre blanket on top. Place your stainless steel cup in to a preheated kiln at 800oC and fire for 1 ½ hours. Remove from the kiln and allow to cool or quench if you prefer. Polish as above (Finishing Prometheus Bronze Clay). Please note: make sure you take your pieces out of the kiln after 1 ½ hours and don't leave them to cool in the kiln, as the activated carbon will turn to ash. If you take it out after 1 ½ hours and leave to cool, you should be able to reuse your activated carbon. You may find there is a little ash on top which can be carefully blown away.

The earrings in the picture were made with dried shapes of Art Clay Copper which were then pressed in to the soft Prometheus Bronze Clay. The firing schedule stated under the Art Clay NZ Testing gave these results. The earrings were finished with Baldwin's Patina (found under Liver of Sulphur, Patinas etc on the Art Clay NZ shopping cart) to give a greater contrast in colour between the bronze and the copper.

The ear wires are 14/20 gold fill. These ear wires and other gold fill products can be found on the Art Clay NZ shopping cart under "Gold Fill". 14/20 Gold Fill is a great colour match for the Bronze Clay and works for most people who may have allergic reactions with other base metals.

We haven't as yet tested the Prometheus Copper Clay or used the Rio Grande Copper and Bronze Clay using this method. Any comments or information you can pass on using your own experimentation is greatly appreciated and will be added to this information sheet.