Introduction to Torch Fired Enameling

By Alisa Gannon

Torch fired enameling may sound intimidating and difficult. But I have been doing it for exactly a month. And I must warn you-it is highly addicting! I want to show you that if I can do it, so can you. The initial purchase for supplies can be a little pricey, but the best part is that the best metal to enamel on is copper, which we know is much more economical than sterling silver. Don't get frustrated if your first few pieces aren't perfect. You will get the hang of it and will be making beautiful projects soon!

Materials List

- 18 g copper disc approximately 25mm (1 inch)
- Lead free 80 mesh opaque black enamel (I prefer Thompson's)
- Lead free 80 mesh opaque enamel in color of choice
- 5" copper wire 20 g
- Chain, cord, or ribbon of choice upon which to hang your pendant

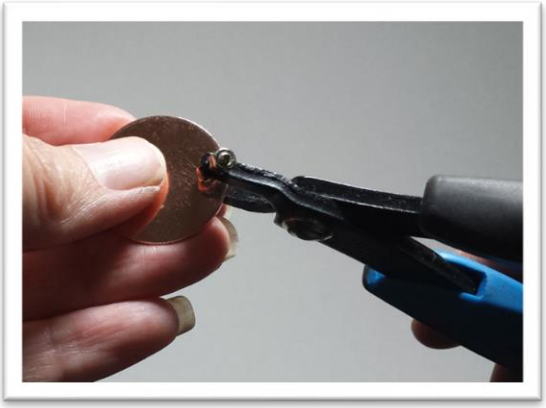
Tool List – Don't forget Safety Glasses!

- Hole punch or drilling implement to make a hole in your disc
- Soda or water bottle caps
- Small 80 mesh enamel sifter
- Torch set up
- Small trash can
- Tripod with firing rack (not the thin mesh kind you get with the tripod)
- Small 3 point trivet
- Warm citric acid pickle (1 part citric acid to 5 parts distilled water) or Penny Brite
- Approximately 3" squares of paper towels
- Manilla folder or pieces of paper to sift on
- Holding agent such as Klyr-Fire or Rio Enamel Adhesive mixed 50/50 with distilled water in a small spray bottle
- Emery board or small sanding stick
- Sandpaper or sanding sponge
- Round file
- Particle mask
- UV rated eye protection-very important!
- Liver of sulfur-optional

Wubbers Medium round Mandrel Pliers

Wubbers Classic Round Nose Pliers

Step One



Using a Euro punch, screw down punch, or drilling device, make a hole in your copper disk. Clean up the hole with sandpaper or a round file if needed.

The copper needs to be very clean before you sift the enamel on it. You can place it in the citric acid pickle or use Penny Brite. Rinse in clean water. Wipe dry with a clean paper towel square and only handle from the edges from now on.

Step Two

Hold the disc by the sides over a garbage can. Spray one time with enamel adhesive, holding the bottle 6-8 inches away. The piece should not be dripping wet- just a light mist.

Step Three

Choose which side you want to use as the back of the piece. We will enamel this first and it is called counter enameling. This is necessary to prevent cracking or warping of the front side due to the stress of expansion and contraction from heating. You may use any color you like or a mix of leftover colors. But as you fire your enamel on the front of the disc, the counter enamel will take on a slightly burnt appearance. For this reason, I prefer black for the counter enamel because it blends better with the burnt look.

Place the disc on a bottle cap on top of a manila folder or piece of paper. Put on your mask and prepare to sift the enamel onto the disc as demonstrated in the following video.

Watch sifting video on Wubbersu.com now.

Step Four

Holding the disc by the sides, carefully place it on the trivet and allow it to dry for approximately 5 minutes.

Step Five

Carefully place the trivet on the tripod over the hole. Put on your UV glasses and prepare to fire the piece. We do this by holding the torch underneath the trivet with a medium sized flame. Start heating slowly and further down the tripod to avoid shocking the enamel. Then move the flame to the trivet, when the enamel begins to change color, aim the flame directly under the piece.

You will see the enamel go through three phases:

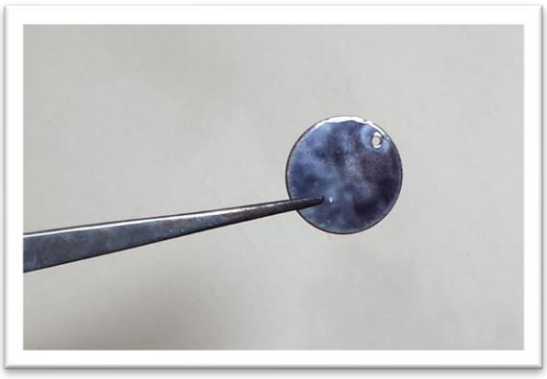
1. Sugar
2. Orange peel
3. Glossy or fire polish, which is the final stage. It should be slick and smooth with no bumps and will be glowing orange. At this point, turn off the torch and carefully use sturdy tweezers to move the trivet to a heat-proof surface.

Watch firing video on Wubbersu.com now.

TIP: The thick screen on the tripod can serve as a heat sink. You may find that you will get better results if you cut a small hole in the middle of the screen with your saw.

Step Six

Let the piece cool on the trivet for a few minutes-it will be very hot! After it has cooled, carefully quench. You may notice that the counter enamel may be a little spotty. This is not a problem, but you may sift and fire another coat if you wish.



Step Seven

The side that will be the front will be black with firescale, so you will need to pickle or use Penny Brite. Rinse in clean water and dry. If you still see some discoloration or residue, use a little sandpaper, then rinse it again, and dry it with a piece of paper towel. Handle it only by the sides.

Step Eight

While the piece is cooling or in the pickle, clean the sifter with a piece of paper towel inside and out. Rinse the bottle cap in water and dry. Carefully pour any excess black enamel back into the container. Use a new piece of paper of folder for the next color. If you are using folders, you can mark them with each color and reuse them.

Step Nine

You are now ready to sift the color of your choice on the front of the disc. Use a clean bottle cap and a new piece of paper or folder. Spray again with the holding agent, then sift on the enamel as you did for the back.

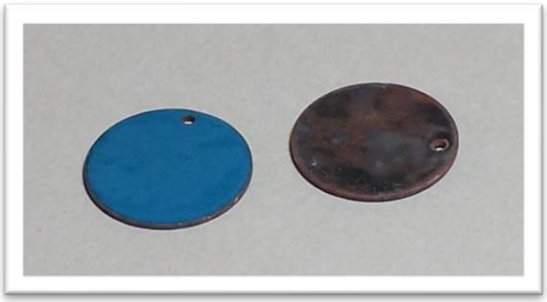
TIP: Be aware that the color of the enamel after firing is usually different than it appears in powder form. It is best to make samples of each color so you know what to expect.

Step Ten

Let the sifted disc dry on the trivet for a few minutes then fire until glossy as before. Place the trivet with the disc on a heat-proof surface and allow to cool. Quench, then pickle briefly or gently clean with Penny Brite. Rinse in clean water and dry with a clean paper towel.

Step Eleven

Prepare to sift and fire another coat of enamel on the front. Lightly spray the front of your disc, place on the bottle cap, and sift another coat of enamel over the first. Let dry on the trivet for a few minutes, and fire on the tripod as before. After cooling, quench, then pickle or clean with Penny Brite and rinse. You may clean the edges with an emery board or leave them blackened as I have. Here is a photo of both the finished front and back sides.



Step Twelve

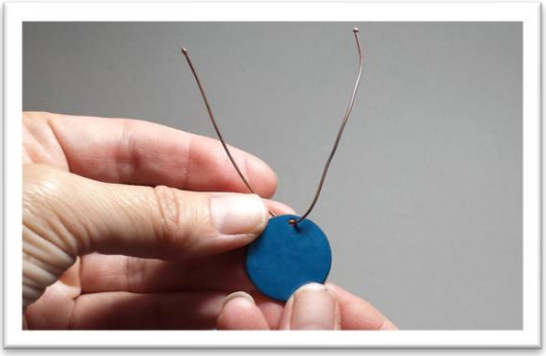
You could put a jump ring on the disc to hang it, but let's make a fun, easy bail instead. Begin by flush cutting 5 inches of 20 gauge copper wire.

Holding the wire in old pliers, carefully place the end in the tip of the blue flame of your lit torch. The end will melt. When a ball forms, remove it from the flame and quench. Repeat with the other end.

Oxidize in liver of sulfur if desired.

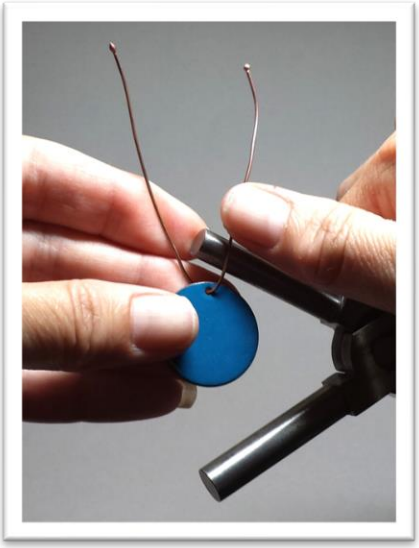
Step Thirteen

Place the wire through the pendant so it is even on both sides and adjust as shown.



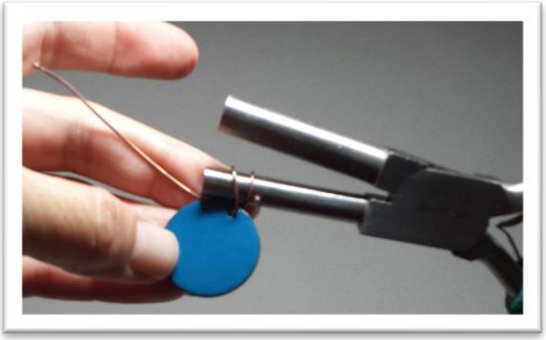
Step Fourteen

Using the smaller side of the Wubbers Round Mandrel Pliers, wrap the wire on the right side around and to the back.



Step Fifteen

Continue wrapping the wire around the pliers-make it as messy or neat as you like.

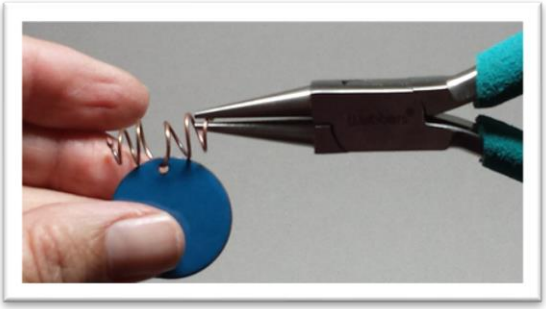


Step Sixteen

Wrap the left side of the wire the same way, but wrap towards you instead of away.

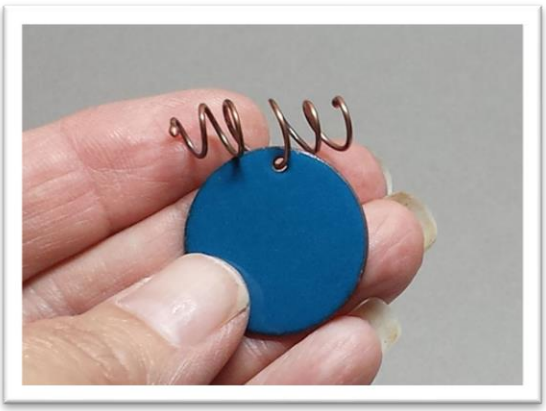
Step Seventeen

Adjust the wires and tighten the ends in a little with your Wubbers round nose pliers.



Step Eighteen

Your enameled pendant is now ready to hang on a cord, ribbon, or chain. With how pretty this is. There are so many more exciting projects to make with enameling. Congratulate yourself and keep creating!



References:

Enameling Made Easy by AnatSilvera

Basic Jewelry Enameling: Torch-Fired Tutorial-Parts 1 and 2 by Pauline Warg –available at CraftDaily.com

Review Questions

1) Copper is a bad choice for enameling.
    a) True
    b) False

2) What needs to be done before you sift the enamel
    a) You should polish your piece of copper with steel wool.
    b) You should clean the piece of metal with pickle or Penny Brite
    c) Nothing-just go ahead and sift

3) You need to protect your eyes while firing the enamel.
    a) True
    b) False

4) The second stage that the enamel goes through while firing is called
    a) Orange peel
    b) Fire polish or glossy
    c) Sugar

5) Torch fired enameling is very difficult and should only be done by professionals.
    a) True
    b) False