Soldering 101

Process

1. Plug in the pickle pot, turn on the power strip, make sure the pickle pot is on high.
2. Set up your soldering area: heat proof surface, solder, flux, paint brush, solder pick/tweezers, cross locking tweezers, copper tongs, fresh water for after pickle, and torch.
3. Make sure your joint (where the two pieces or connections meet) is tight, no light should pass through.
4. Paint a small amount of flux on the joint or area you are soldering. Use a solder pick or tweezers to put a pallion of solder on the joint. MAKE SURE the solder pallion touches both sides of the joint/metals.
5. Use a torch to dry the flux; approach your piece slowly, the flux will bubble and boil while the water evaporates. Use your pick/tweezers to reposition your solder pallion back to the correct position.
6. Heat the metal piece, not just the solder. The hottest part of the flame is just beyond the bright blue tip of the flame. Once your piece is heated up, focus the flame on the solder pallion. WATCH for the solder to ball up perfectly, it should flow immediately after it balls up. When solder flows it looks like liquid silver, very shimmery. REMOVE your flame as soon as the solder flows!
7. Cool your piece in water and check the joint by placing pressure on it. Put your piece in the pickle USING COPPER TONGS ONLY!!!! DO NOT USE TWEEZERS OR STEEL IN THE PICKLE!!! If your piece did not successfully solder, pickle it, rinse and repeat steps 3 through 7.
8. When your piece is clean remove it using COPPER TONGS and rinse in water next to pickle pot.

NOTE: copper and brass look pink when clean in pickle, silver looks white.

1. You are now ready to finish your piece or move on to your next solder joint.
2. Once you are done with your soldering project, unplug the pickle pot, turn off the power strips, clean off your flux brushes and return all tools/supplies to the proper place. Please pay the supply fee for consumables you used ☺. Envelopes and payment box are located within the Jewelry/Small Metals area. Thank you!

Overview and Definitions of Soldering Process

Jewelry soldering or silver soldering is done with a torch (butane, propane, MAPP, etc.) and specific solder and flux for our purposes. This is not the same as electronic or art glass soldering. We use non-ferrous metals, any metal that does not contain iron, including copper, silver, gold, brass, and nickel. FLUX is used to keep the metal clean from oxidation during the soldering process. Solder will not flow on dirty or oxidized metal. SOLDER is used to connect two (or more) pieces of metal. It does not act like glue, but becomes part of the metals it is joining; this is why there cannot be a gap between the joint/metal pieces you are soldering together. Solder is available to match the metal (silver solder for silver, gold solder for gold, etc.) and in different forms (sheet, wire, paste, and pre-cut pallions). PICKLE is an acid solution used to quickly clean off oxidation after the soldering process. Fire causes oxidation which prevents solder from flowing. This is why you need to pickle your piece even if your solder didn’t join successfully. NEVER put steel tweezers, steel tools/solder picks, etc. or any ferrous metal into the pickle pot. ONLY USE THE COPPER TONGS PROVIDED! Failure to do so will contaminate the pickle solution and any pieces that are placed in contaminated pickle.

Materials Used in Class and Where You Can Buy Them

Butane torch—hardware stores. Propane torches can be used as well but are for larger projects. Specialty torches are available from jewelry suppliers like RioGrande.com and OttoFrei.com

Copper jump rings—jewelry supplier; available in different metals and many sizes and gauges (thickness). Can cut your own using wire, a dowel and jewelers saw.

Firebrick, charcoal block, soldering pads--firebricks are available online only, pack of 6, TheHomeDepot.com; charcoal blocks and soldering pads/surfaces are available at jewelry suppliers.

Cross locking tweezers, fine point tweezers, soldering picks, natural bristle paint brushes—RioGrande.com, OttoFrei.com, Michaels, dollar store.

Silver solder—jewelry supplier; can be purchased in pre-cut pallions, sheet, wire and paste. We used pre-cut silver solder pallions. There are 3 types of solder: hard, medium and easy, which refers to the temperature at which it melts. Hard is the highest temp, next is medium, easy is the lowest melting temperature. This is helpful when solder multiple areas on the same project and helps prevent previous joints from “unsoldering” while you are soldering another joint. Always start with hard solder when a project has multiple soldering joints. Also available in gold, copper, brass, bronze. Note: copper solder is not a good color match to copper, it looks silver; I personally use silver solder with copper. However, I use gold solder with gold, brass solder with brass, and bronze solder with bronze.

Handy Flux Paste—jewelry supplier. Also available in liquid form; paste is easier to work with.

Pickle/Pickle pot—pickle solution comes in powder form from jewelry suppliers; small crock pots are perfect for pickle pots. Find them at the grocery store, dollar store, CCA/Goodwill.

Copper tongs—jewelry supplier. Plastic tongs may be used as well.

Online Jewelry Suppliers

RioGrande.com—my personal go to supplier; has everything from metals in all forms (silver, gold, copper; sheet, wire, tubing, etc.), findings, tools, equipment, torches, supplies, beads, stones, and more. Very reputable, they use current metal markets for metal pricing, used by professionals. Located in Albuquerque.

OttoFrei.com—price comparison with Rio when buying expensive tools/equipment.

ThunerbirdSupply.com—wholesale jewelry supplier.

Local Jewelry Suppliers

Rock Barrell—in north Dallas/Richardson, soldering supplies and tools available, plus metals and large supply of stones/beads.

Roseco Inc—in Dallas/Addison. Must have a sales tax number and account with them to buy. Usually more expensive than online wholesalers, but can save shipping costs on heavy items like casting metals, tools/equipment, and save time when supplies are needed fast.

Things to Remember/Troubleshooting

Soldering joints/seams/connections MUST be smooth and fit together tightly, without any space between. Metal must be clean and free of oxidation.

Pickle solution must be hot; plug in the pot first thing before setting up your project.

Do not put any steel/ferrous metals in the pickle pot!!

UNPLUG pickle pots and TURN OFF power strips when finished!

If your solder isn’t flowing:

* Pickle the piece to make sure it’s clean.
* It may be a heat issue. Make sure you are heating the entire piece in the beginning, not just the solder. Check that the piece is in the hot part of the flame, just past the bright blue tip, and heat it until it flows.
* Refuel the torch.
* If you are soldering a large piece OR brass, consider using a propane torch which has a larger flame.
* Don’t be afraid to bring the metal to a dull glowing point (orange/red for copper and brass, dark pink for silver); this is approaching the melting point of the metal so don’t let it go much further or hold it there for long! This is very easy to see with copper and brass; very difficult to see on silver, so if you can, turn the lights off when doing this with silver.

There are lots of videos online about soldering that can help you become more familiar with the soldering process ☺.

Information provided by Anne Elizabeth, last updated 2/2017.