

**Advanced Copper Electroforming and Plating
Instructor Dennis Nahabetian**

Supply list

Things You Should Already Have (from intro class)

Hand Tools You May Have:

Pliers
Fine wire cutters (flush if possible)
Fine tweezers
Brass brush
Sandpaper or other abrasive sheet (various grit or micron)
Needle files

Supplies You May Have:

Copper wire (around 20 gauge)
2 x PP or HDPE containers with lid (I like to use a 32 oz cleaned yogurt container)
Nitrile gloves
Bamboo chopsticks (keep them connected)
Plastic funnel
Paper coffee filters
Lots of paper towels

Optional:

Pickle pot for cleaning oxidized metal
Abrasive scrubbies
Shallow clear plastic storage container **PP** (about shoebox size)

You will also need:

1 or 2 gallons Distilled Water

Places to Order Supplies if Needed:

Wax:

Casting:

<https://shop.sculpt.com/victory-brown-casting-wax-1lb.html>

Sticky:

<https://shop.sculpt.com/paramelt-victory-brown-sculpting-wax-1lb.html>

Ingredients for Big Bath

12 gallons Distilled Water. *Found at grocery store.*

Buy at Hardware Store

(2 X) **5 gallon buckets** with **lids**. (Labeled HDPE on bottom of bucket)

Battery Acid (35% Sulphuric Acid) **or available at Autozone (Does Not Ship)**

This is the brand to ask for at autozone

https://www.autozone.com/batteries-starting-and-charging/battery-acid/east-penn-battery-acid-fluid-1-quart/66445_0_0

(3 x) **Copper pipe** (1/2 to 3/4 diameter cut to **14 inch** lengths.

Plastic Coated copper electrical wire. **12 feet length**

Hand clamps. With a **V groove** for round stock on the pads like these.

<https://www.lowes.com/pd/CRAFTSMAN-6-piece-Set-Spring-CI-Amp/5001171671>

Copper Pipe for Anodes (almost all pipes are C122 alloy). (Go for larger size diameter - at least 3/4 in" at 12 inch lengths)

Online

5 lbs. Copper Sulphate Pentahydrate.

https://www.amazon.com/gp/product/B07RF1FKBN/ref=ox_sc_act_title_1?smid=AYN-RNKQRED2YL&psc=1

(2 x) **Copper Pipe** (2.5" in diameter x 12").

<https://www.onlinemetals.com/en/buy/copper/2-5-od-x-0-065-wall-x-2-37-id-copper-round-tube-122/pid/24333>

You can opt to buy concentrated Sulphuric Acid Here:

**** Lab Quality Sulphuric Acid - shipping can be costly**

(if you want a bath larger than 5 gallons or would prefer a higher quality bath).

<https://www.laballey.com/products/sulfuric-acid-high-purity-laboratory-grade-85-oz-2-5-liter-50>

(Optional) HCL = Hydrochloric Acid

<https://www.homesciencetools.com/product/hydrochloric-acid-100-ml/>

Additional Supplies

Rio Grande:

Midas Bright Copper Electroforming Solution. One quart should be enough for starters.

<https://www.riogrande.com/product/midas-bright-copper-electroforming-solution/335074>

20 Gauge Copper Wire

<https://www.riogrande.com/product/Copper-Round-Wire-4-Oz-Spool-20-Ga-Dead-Soft/132453>

Really Fine tweezers (I use these for patterning)

<https://www.riogrande.com/product/regine-precision-tweezers-style-aa/115286>

Conductive Paint:

<https://www.riogrande.com/product/graphite-conductive-paint-2-oz/118102>

Micro finishing film (abrasive)

<https://www.riogrande.com/product/3m-imperial-micro-finishing-film-assortment/337310>

Pliers and wire cutter that I use (absolutely wonderful)

<https://www.riogrande.com/product/lindstrom-pliers-and-cutters-set/111170>

Really Fine tweezers (I use these for patterning)

<https://www.riogrande.com/product/regine-precision-tweezers-style-aa/115286>

Also Great 3M “Tri-M-Ite” abrasive cloth

<https://www.riogrande.com/product/3m-wetordry-tri-m-ite-polishing-paper-400-grit/337301>

Brass Brush

<https://www.riogrande.com/product/brass-wire-bristle-brush/113172>

Amazon:

Rectifier:

5 amp DC Power Supply

https://www.amazon.com/Dr-meter-Single-Output-Switchable-Alligator-included/dp/B00O8D-J8QC/ref=sr_1_4?dchild=1&fst=as%3Aoff&keywords=Lab%20Power%20Supplies&qid=1600381881&refinements=p_85%3A2470955011%2Cp_89%3ADr.meter&rnid=2528832011&rps=1&s=industrial&sr=1-4&fbclid=IwAR26tK00vi8me26MwQUqH5GS3WSuvtr7-1N8L_PfmfFvZNA_XxhJ-RqhaKl

Gloves

https://www.amazon.com/gp/product/B000JFJLZ6/ref=ox_sc_act_title_4?smid=A23ADOZFI-JNPF&psc=1

Wood Chopsticks

Can be found at most eastern restaurants for free or:

https://www.amazon.com/gp/product/B01JJBV0NQ/ref=ox_sc_act_title_1?smid=ADJ8GJXN-TQ637&psc=1

Scrubbies

https://www.amazon.com/gp/product/B0768JLFR2/ref=ox_sc_act_title_3?smid=AJMQR798MDSQU&psc=1

Filters

https://www.amazon.com/gp/product/B00AZ3AU8O/ref=ox_sc_act_title_5?smid=ACT-B8CBED46SR&psc=1

Funnel

https://www.amazon.com/gp/product/B000HJBFC6/ref=ox_sc_act_title_6?smid=ATVPD-KIKX0DER&psc=1

Pliers and Wire cutters (cheap)

https://www.amazon.com/gp/product/B07QVPGX7H/ref=ox_sc_act_title_8?smid=A35XSC3YNT0H0M&psc=1

Pickle (Rio) **or** (1 part sulphuric acid to 9 parts distilled water)
Torch or Kiln (both preferred)

(Optional) PP tub and lid (used as a drip container)