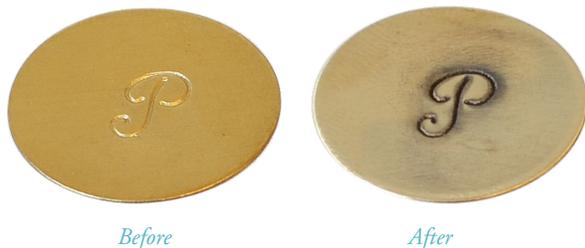


## OXIDATION:

With use or time, the surface of many metals will darken and/or change color. Applying chemicals to metal surfaces speeds up this process.



## SAFETY

- Always work in a well-lit, well-ventilated area. Depending on chemicals used, and your sensitivity, consider wearing a respirator.
- Avoid contact with eyes, skin and clothing. Wear eye protection and wear rubber gloves.
- Read and follow the manufacturer's instructions for the product. Read the MSDS (materials safety data sheet).
- Make sure your metal is clean and dry (and warm if using Win-Ox™).
- Dip your piece directly into the oxidizer or apply with a brush.
- Optional: after rinsing and drying the metal, buff gently to create antiqued crevices and shiny high points.
- For safety and consistent results, antique your components before assembling, especially when creating items from mixed metals. Each metal reacts differently to each oxidizing solution, and some reactions involving multiple metals are hazardous or unpredictable.
- Dispose of waste according to your local hazardous waste regulations.

## WHEN TO PATINA

Oxidize after all texturing work is done (stamping, drilling, punching etc), but before connecting other components to the piece.

## SURFACE PREPARATION

- Make sure the metal is clean and dry before antiquing.
- Clean with soap and water, or rubbing alcohol. Remove grease and machine oils with sandpaper or a mildly abrasive scrubbing pad.

## RESULTING COLOR DEPENDS ON:

- Temperature of the metal
- Temperature of the patina solution
- Concentration of the patina solution
- Time in the solution
- Type of solution used

## WHEN DONE

Stop patina process by dipping into neutralizing solution (2tbs baking soda mixed into 2C water).

## DON'T LIKE YOUR RESULTS?

Remove patina with a polishing cloth, silver polish, tarnish remover, or pickle.

## POLISHING METHODS

Polish to remove some color – to highlight light and dark areas, and create antiqued crevices and shiny high points.

Use steel wool, silver puff (#63-532), polishing papers (#69-257-000), ultra-polishing pads (#63-528) or tumbler (#69-281) (if you have a lot of pieces, and no pearls or other delicate materials, a tumbler is the way to go!)

## PROTECTING THE FINISH

Since the patina is on the surface of the metal, it will eventually come off if the surface is not protected. Some products you can use to protect the finish include: Renaissance Wax (#86-915), Krylon® matte or gloss spray finish and lacquer.

*The North Star Necklace*

by Mollie Valente

Mollie used liver of sulfur (#86-354) to oxidize the hand made donut bail.



*All Seeing Bracelet*

by Joe Hentges

Joe used Win-Ox™ (#86-343) to patina this COPPRclay™ focal piece.



## CHEMICAL STORAGE

- Store materials in marked containers.
- Store in a dark cool area, away from children and pets.
- Store away from other metals, including your jewelry supplies and tools.
- Shelf life varies depending on product, humidity, temperature and other storage factors.

## LIVER OF SULFUR – POTASH

- Works on copper, brass and nickel silver.
- Do not use with aluminum! It can cause a hazardous reaction.
- Good for large batches of items to be patinated.
- Liver of sulfur is a mixture of potassium sulfide, potassium polysulfide, potassium thiosulfate, and probably potassium bisulfide.
- Lump form liver of sulfur has a very short shelf life (about six months under the best of conditions). It is also light-sensitive, and regular exposure to strong light will shorten its shelf life still further.
- Lump form liver of sulfur is considered a flammable solid.
- Lump form liver of sulfur can cause an inhalation hazard due to the dust created by handling it or breaking the larger chunks into smaller pieces. When fresh, the chunks should be yellow in color.
- Dissolve a small amount in hot water, using a plastic or glass container (don't use a metal container).
- You can obtain different results by varying the proportion of sulfur to water.
- Use plastic/stainless steel tweezers (or create a hook of some kind) and dip metal piece into solution holding for a few seconds. Rinse in a second container of cold water. Keep dipping and rinsing until you've reached the color you like.
- Can also be applied with a non-metal brush.
- Seal the container well to eliminate oxygen exposure.
- Subject to shipping restrictions.

## LIVER OF SULFUR XL GEL

- Works on copper and nickel silver.
- Do not use with aluminum! It can cause a hazardous reaction.
- Gel form has a reduced potential for harm as an inhalant.
- Liver of sulfur extended-life XL Gel does NOT patina brass.
- Mix 1 tsp. per 12 oz of warm water (or smaller batches in the same ratio, ¼ tsp. to 3 oz.) using a plastic or glass container (don't use a metal container).
- Use plastic/stainless steel tweezers (or create a hook of some kind) and dip metal piece into solution holding for a few seconds. Rinse in a second container of cold water. Keep dipping and rinsing until you've reached the color you like.
- Can also be applied with a non-metal brush.

## NOVACAN BLACK PATINA

- Works on copper, brass and nickel silver.
- Pre-mixed patina.
- Instantly produces a rich, dark patina on lead-free solder, brass, copper, nickel, pewter and bronze.
- Apply with a cotton swab, when desired darkness is achieved, rinse and then polish.
- Subject to shipping restrictions.

## WIN-OX™

- Works on copper, brass, bronze, silver and gold.
- Do not use with aluminum! It can cause a hazardous reaction.
- Contains hydrochloric acid and tellurium.
- Dip metal piece into solution or apply with a cotton swab or non-metal brush.
- Rinse and then polish.
- Subject to shipping restrictions.



*Puppy Love Pin*  
by Mollie Valente

Mollie used Novacan Black patina (#86-322) to antique this DIY soldered pin.

*Flight Necklace*  
by Rita Hutchinson

Rita used Liver of Sulfur XL Gel (#86-322) to patina this etched pendant.

## MORE RESOURCES:

#62-010 *The Complete Metalsmith: An Illustrated Handbook*, by Tim McCreight, offers many recipes for specialty colors of patina.

#62-090 *Jewelry Lab: 52 Experiments, Investigations and Explorations in Metal*, by Melissa Manley. This book includes 52 different jewelry techniques detailed in 9 units. Each unit covers a basic technique that can be used in many unique ways. Learn soldering, hammering, coloring metal, rolling and more.

Check out our full Education Station online!

[www.rings-things.com/resources](http://www.rings-things.com/resources)