

Rainbow and Oxidized Patinas with Patina Gel

Effective on: Fine silver, sterling silver, and copper-bearing metals including brass, bronze and copper

Result on fine or sterling silver: Rainbow colors to black

Result on Copper: brown to black

Result on bronze and brass: brown to black

Before you begin

Gather together all of your tools and supplies. A video workshop is available online at www.cooltools.us

The workshop covers the basics of liver of sulfur patinas on a variety of metals. These instructions are for small jewelry pieces.

See the end of these instructions for notes on larger pieces or use on copper, brass and bronze.

Tool List	
Small plastic container with lid for patina solution	Ammonia, household non-sudsy
Small plastic or glass container for cleaning solution	Liquid dish soap (original Dawn works great)
Small plastic or glass container for neutralizing water bath	Baking Soda
Tongs, tweezers, plastic mesh basket or wire for dipping articles	Waterproof gloves
Small spoon or popsicle stick for mixing	Polishing supplies
Toothbrush	



Safety

Work in a well ventilated area. Liver of sulfur, when mixed into solution, emits a distinctive rotten egg odor. This odor is not harmful in small amounts as long as the solution is not burned, however it is wise to avoid breathing the fumes directly. Use in a well ventilated area. Do not boil and do not mix with boiling water. Boiling or burning emits toxic fumes. See MSDS online for further safety precautions.

Procedure

You will clean the metal, then dip it in a solution of Patina Gel to oxidize it, then dip in a neutralizing bath, then dry and polish.

1

Clean the metal

To remove all traces of polishing residues, oils and fingerprints from your metal, prepare a bowl of warm, soapy water with a little soap and ammonia in it. (2 cups of warm water, 1teaspoons liquid dish soap, 2 Tablespoon ammonia. All these measurements can be estimated.) Cleaning the metal is easiest when done at a sink. Dip a toothbrush in the cleaning solution and brush the entire piece. Rinse in clean water and place on paper towels to dry. Do not touch the piece with your bare fingers from here on out to avoid re-contaminating it with fingerprints that will not take the patina.

2

Mix up the solutions

Mix up the neutralizing bath as follows: To 2 cups of warm water add about a tablespoon of baking soda and stir to dissolve.

Mix up your Patina Gel solution in a glass or plastic container with a lid. Add a few drops of Patina Gel to the bottom of the container, then pour hot water over in the bowl. The color should be dark yellow, like lemon jello. Put the lid on the solution when not using it to preserve the temperature. A coffee mug works well for a liver of sulfur container, and it can be kept on a cup warmer to extend the working time.

3

Patina your metal

Hold your article using tweezers or tongs, or place it in a basket or strainer, or suspend it on a scrap of wire strung through a bail or other hole. Dip into the Patina Gel solution and then remove, holding it above the solution to drain. Watch as the colors develop. This may happen slowly or quickly. The colors you get depend completely upon the temperature of your solution, the temperature of the metal and the length of time the item is kept in the solution. It's best to dip repeatedly if you wish to have a very dark patina. Continue dipping until you have achieved the colors you are happy with, then dip into the neutralizing bath the stop the process. The hotter the solution and the item, the quicker the colors will develop. The solution can also be painted directly on the metal. Hold the article in your gloved hand and apply the solution with a paint brush. Once you have achieved the colors you desire, allow the piece to soak in the neutralizing bath for several minutes to be sure the sulfur has been completely neutralized. Then remove from the bath, rinse and dry on paper towels.

To highlight textured areas, shine up the high spots on your metal using a fine abrasive such as a 400 grit 3M polishing papers a 3M Microfine Sponge sanding pad, a Pro-Polish pad, a Scotchbrite pad, or a 1500 grit sanding swab to remove the oxidation from the high spots on the metal.

A traditional method is to rub the metal with a paste of baking soda or pumice and water. Use a large pinch of baking soda or pumice. Mix with a sprinkle of water in the palm of your hand. Thumbs make especially good tools for rubbing away just the right amount of oxidation.

If you desire a mirror finish on the high spots, first polish off the unwanted patina with any one of the abrasives mentioned previously. Polish again using the next finest grit, repeating with successively finer grits until a mirror polish has been achieved. After polishing, buff with a polishing cloth.



Tip: A video on achieving a mirror finish can be viewed on our website at www.cooltools.us, in our Learning Center.

Beautiful, iridescent colors are possible with Patina Gel and silver (fine, sterling and Argentium), especially with the addition of a little ammonia to the liver of sulfur solution. As beautiful as these colors are, they are not permanent. Over time these colors will darken to a dark grey. The time it takes for this process to occur depends completely on conditions in your area. Smog, salt water, heat, sunlight and chemical exposure of the metal can greatly speed oxidation. It is possible to preserve the patina for a time with a microcrystalline wax or anything containing bees wax (Carmex is a personal favorite), but this will also change the saturation of the colors permanently and the metal will still continue to tarnish as all silver does, but much more slowly.

Gemstones

All cubic zirconia, lab and glass stones are unharmed by Patina Gel. Any natural gemstone that can be fired in place is safe for Patina Gel. Do not allow Patina Gel to contact turquoise, lapis, shells, pearls or other soft stones as they can be permanently stained. Set these types of stones after the patina is complete.



Options

- Add 1T ammonia to the Patina Gel solution for brighter colors
- Warm the article to be patina to speed up the process. This is especially helpful when you want a very dark grey.
- Make the Patina Gel solution using luke-warm water to slow the process down and get better color control
- Brush the solution onto your article instead of dipping to avoid using patina on areas that you do not want colored.
- Brushing the solution onto your article while it is horizontal will give a different result than brushing it on while it is vertical.
- Dipping into solution and then draining vertically will give you a different result than if you drain horizontally.

Patina Removal

If you are not happy with the results of your patina, you can remove it by soaking your article for a few minutes in jewelers pickle solution. If the article is fine silver, it can be heated with a torch to a dull red or fired at 1000F for 10 minutes to remove the patina so you can try again. A patina can be added and removed indefinitely so long as no embedded materials limit the process. Have fun with it and try different temperatures and dipping methods to learn to control the patina.

Shelf Life

Patina Gel is a stabilized gel form of liver of sulfur. It does not degrade in light or air as does lump form. However, to preserve the gel for the longest life, it is best to store it in a cool, dark location with the lid tightly closed, and away from pets and children. Once Patina Gel is mixed into solution, it behaves exactly the same as ordinary liver of sulfur.

Disposal

After mixing into solution, Patina Gel will immediately begin to degrade. After a few hours the color begins to become pale and milky, eventually turning white. Within a day or two, the white will settle to the bottom of the container and the water will be clear. Once the solution begins to pale in color and become opaque it will lose its effectiveness and will no longer perform. The degradation will happen in anywhere from an hour to several hours, depending on conditions. Once the solution is degraded, it's safe to dispose of by diluting and pouring down a drain, but it's much better to use as a plant fertilizer. Tomatoes are especially happy to get a sulfur boost! Be sure to dilute Patina Gel solution before using on your plants. 2 cups of solution should be diluted with a gallon of water before applying to plants or grass.

Water quality can affect the outcome

If you are not getting a result with your patina, make your solution stronger. If you still don't get a result, try using distilled water. Well water and municipal water can have several different types of elements in it that can affect the liver of sulfur. Using distilled water will eliminate this problem.



Notes for use with Copper, Bronze and Brass

Be sure the metal brass does not have a sealed surface before attempting to patina. Brass stampings are often lacquered and will therefore resist the patina. Remove any surface treatment by abrading and then clean before using Patina Gel. Patina using luke-warm water to create a more durable patina. Dip multiple times if necessary for the darkness you desire.

Adjust the recipe to create a larger batch if you are using sheet metal. Leave large pieces in the sun to warm before applying the patina solution, but not so long that the metal is so hot you can't touch it with your bare fingers. The patina solution can be misted on and left in the sun a little bit to expedite the process. Use a 0000 steel wool pad to remove the patina from the high places or areas you don't want it.

Liver of sulfur patina will not produce the green patina of weathered copper and bronze. For a green patina, fume the metal with ammonia and salt. See our Learning Center for more details on this type of patina.

Be sure and download our free publication, A Jewelry Artists Guide to Liver of Sulfur Patinas. Visit our Learning Center at www.cooltools.us for this and other great (free) publications on jewelry making techniques.