

GILDING & CHEMICAL PATINATION

By David J. Marks

The patina finish that I have been working with since the late 1980's, is a trademark of my work. The method I use is a fusion of different techniques that I have combined and refined to create an unique appearance. I build layers of paints, gilding (metal leafing), mild acids, and lacquering methods that result in a finish that may look ancient, metallic, or even stone like.

I've used the patina finish primarily on turned work, such as vessels or wall sculptures, but I also have applied it to tabletops. The procedure is time-consuming, so keep that in mind if you choose to use it on larger projects.

The process involves five basic steps: sealing the wood, adding color, gilding, chemically treating the gilding to create patinas, and finally, top coating the surface for protection.

Sand, seal, and paint the substrate

Any type of wood can be used, but open-pore woods need to be filled and thus require more work. When the finished object will be a combination of patinated and natural wood, I choose highly figured stock. But when I plan to color the entire piece, I use paint-grade woods (poplar) or man-made materials such as void free plywood.

The areas to be colored and gilded must be primed, or sealed, first. I apply 3 to 4 coats of white pigmented shellac, which dries quickly, sanding in between to 220 grit. Then I add numerous layers of paint. Either oil or water-based paints can be used, but I prefer Japan paint (produced by the Ronan Company), which are oil based. Available in a variety of rich hues, Japan paints dry fast, sand smooth, and may be brushed or sprayed on. After the paint has dried, sand the surface with 320-grit paper, and then selectively sand through various layers of color. The process of layering on colors, and subsequently sanding through the layers to expose underlying colors, is similar to the Japanese lacquering technique known as urushi.

Gilding comes next

Gilding involves laying very thin layers of metal leaf on a surface (for more on the techniques described here, my DVD *Gilding and Chemical Patinations with Grace Baggot*, is available at www.djmarks.com). Most people are familiar with gold leaf, but other metals are available in leaf form. Because patination involves tarnishing or oxidizing the metal, genuine gold is not used because it resists tarnish. Metals appropriate for patination include copper, silver, and Dutch metal leaf (aka composition gold), which is gold in color.

For metal to bond to a surface, an adhesive is necessary. I like to use traditional oil size – either Rolco quick-dry size or Le Franc three-hour oil size – which must be applied to the work piece with a fine brush. Apply the leaf after the size sets up but before it cures; in this state, it acts as an adhesive. To test the readiness of the size, touch a knuckle to the work piece. It should feel tacky, as if you were touching the sticky side of masking tape.

Apply leaf in nongeometric shapes, tearing the sheets and laying them down with ragged edges. I deliberately leave about 5% to 30% of the background paint exposed (a Japanese technique called *Notan gilding*), and sometimes I mix different metals for effect. I also use a mask, or a resist, made of mesh netting to create a fish-scale effect.

To burnish the leaf and ensure that it firmly adheres to the size, place a sheet of waxed paper over the leaf and rub it down with your finger.

Tarnish the metal with chemicals

Chemical patinas are achieved by oxidizing the metal leaf with mild acids. When mixing and using the chemicals, wear gloves and eye protection and work in a well-ventilated space.

The chemicals may be applied with a brush, sea sponge, spray bottle, or rag. To avoid an overly uniform patina, apply different absorbent materials to the work piece to allow different rates of chemical exposure. For example, I sometimes lay wrinkled tissue paper or cheesecloth on the surface (moistened with water so that it remains in place), then apply the chemicals with a brush, dabbing selectively. Feel free to experiment to find the right effect.

After the chemicals have done their work, remove the paper or cheesecloth and blot the work piece dry with paper towels. The chemical reaction is gradual, which allows you to stop the patination process before full oxidation

takes place. Different exposure times will produce slightly different colors on the metal.

Seal the work piece to protect it

Once the surface is dry, I seal it with a thin coat of shellac, or Krylon gloss Acrylic lacquer. Once that dries, I apply a light coat of shellac. Any finish you put over the patina will diminish some of its rich colors, although shellac or lacquer have a more minimal effect. I use shellac for the seal coats, because it is compatible with the oil size underneath the metal leaf. At this point you can continue on with more coats of shellac or you can follow up with vinyl sanding sealer and lacquer. Other finishes that work are polyurethane, catalyzed lacquers or urethanes, and even water based finishes. All of these will work over the seal coats of clear shellac. You can even use the size for your clear coats because it is a varnish.

Overview of Process:

Begin with a layer of color:

Prime and paint the work piece. For primer, use a white pigmented shellac. I have good success with the Bin Zinsser Alcohol Based Shellac Primer. Then apply one or more layers of Japan colors. Last, selectively sand through the paint, exposing some of the underlying colors.

Brush on the size:

The size, a type of varnish, acts as an adhesive for the metal leaf. To test the size for readiness, touch your knuckle to the size, the surface should feel tacky.

Gild the surface:

Metal leaf goes over the painted surfaces. To add texture and abstract patterns, do not apply the leaf uniformly. To achieve a random textural pattern, use a mesh bag (the kind fruit or vegetables are sold in) to mask off parts of the work piece. Make sure that the bags are some type of plastic material, because cotton fiber will stick to the varnish and the plastic will not stick. Then apply pieces of metal leaf using a soft brush (I use a sable synthetic combination brush), tamping the metal leaf down through the gaps in the mesh. Remove the mesh, the result will be a random fish-scale pattern.

Remove the excess metal:

After the size has dried and the leaf has adhered fully, brush away loose pieces of leaf.

Color the metal with chemicals:

Patina chemicals are mild acids that will change the color of metal leaf (silver, copper, and Dutch metal). The intensity of the color may be controlled by how much and how long the acid is applied. Since these chemicals are mild acids, it is a good idea to wear hand and eye protection when mixing them. Work outdoors or in a well-ventilated area.

Chemicals and their effects:

Potash sulfurated (liver of sulphur) turns silver leaf a gold tone, then light red, light blue, and finally black.

Barium sulfide turns copper leaf purple

Sodium sulfide turns copper leaf red, but dry it off within about 10 – 15 seconds to keep the red color. Also turns Dutch metal orange, then light red, and finally blue-green or gold-green.

The cupric nitrate and ammonium chloride combination turn Dutch metal to a green-blue, chalky-bronze patina. This formula is different than the others: I use 1/8 teaspoon of cupric nitrate added to 1/4 teaspoon of ammonium chloride, dissolved into 1/2 cup of warm water.

Basic formula:

Mix 1/8 teaspoon dry chemical to 1/4 cup warm water (always add the chemical to the water as opposed to the water to the chemical).

Technique tip:

Instead of applying the acid directly to the metal leaf, which would leave a more uniform patina, try selectively covering the substrate with layers of tissue paper and cheesecloth moistened with water. Then dab on acid with a brush. Taking away the chemical-soaked cloth reveals a patina with a wide range of tones. Be sure to blot away the remaining acid using a piece of crumpled tissue paper or a soft paper towel. When dry, the piece should be sealed with shellac and then top coated.

Sources of Supply:

Chemicals & Leaf: www.ArtChemicals.com

Gilding Products: Sepp Leaf Products, (212) 683-2840 www.seppleaf.com