

# ***Chemical Patinas & Rust***

*Make and Take, 1/18/14*

*Instructions pulled together by Gigi Babcock and Ralph Miller*

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# Supplies and Equipment

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## Items included in the Kit

- Sophisticated Finishes Instant Iron Metallic Surfacers "*iron surfacer*"
- Sophisticated Finishes Instant Gold Metallic Surfacers "*gold surfacer*"
- Sophisticated Finishes Instant Copper Metallic Surfacers "*copper surfacer*"
- Sophisticated Finishes Rust Solution "*rust solution*"
- Sophisticated Finishes Patina Green Antiquing Solution "*patina green*"
- Atomized Steel
- Atomized Bronze

## Supplies

### ***Basic Supplies***

- Leak proof bottles<sup>1</sup>
- Safety goggles
- Acrylic paint
- Art brushes regular
- Disposable brushes<sup>2</sup>
- Disposable containers for holding the metallic surfacer or patina antiquing solution that is being used
- Paper cups or similar item, for rinsing the brushes. There should be one cup for each metallic surfacer and patina antiquing solution, as they should not be shared

### ***Optional Supplies***

- Plastic spray bottles<sup>3</sup>
- Sprayer<sup>4</sup> (not recommended for patina antiquing solutions)
- Sand, dirt or other items to create texture
- Other applicators such as rags, or sponges

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## Footnotes

<sup>1</sup> Bottles in the kit are eBags 3-1-1 Nalgene Travel Bottle Kit, from Amazon (much cheaper than buying them individually)

<sup>2</sup> For most projects, a foam or other inexpensive brush should be used as the brushes can not be completely cleaned. (If using a roller, a very tight nap roller is best.)

<sup>3</sup> Plastic pump spray bottles or small trigger spray bottles are an effective way to apply the patina antiquing solutions solution

<sup>4</sup> For larger projects, you may use a sprayer. The products are non-toxic, but we recommend you spray in a well-ventilated area wearing a respirator, protective eyewear and gloves. Metallic surfacers require the widest tip available. You may find the Iron Metallic Surfacers too chunky to successfully spray. For best results use an airless sprayer.

# Products

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## **Sophisticated Finishes Metallic Surfacers (from the manufacturer)**

- Metallic Surfacers are an ingenious alternative to using costly and difficult to work with solid metal materials. Our innovative blend of fine metal particles suspended in a durable water-base acrylic binder allows you to transform virtually any paintable surface from the ordinary into the extraordinary. From concrete and plaster to wood or to plastic and even cloth, your creation will have the look and feel of authentic metal without the weight, expense and fabrication challenges of working with real metal.
- Metallic Surfacers are simple to apply and require no special tools or training.

## **Atomized metals**

- Atomized metals are powdered metals. According to Wikipedia,  
*atomization is accomplished by forcing a molten metal stream through an orifice at moderate pressures. A gas is introduced into the metal stream just before it leaves the nozzle, serving to create turbulence as the entrained gas expands (due to heating) and exits into a large collection volume exterior to the orifice. The collection volume is filled with gas to promote further turbulence of the molten metal jet.*  
*On Earth, air and powder streams are segregated using gravity or cyclonic separation. Most atomized powders are annealed, which helps reduce the oxide and carbon content. The water atomized particles are smaller, cleaner, and nonporous and have a greater breadth of size, which allows better compacting.*
- Note that the Metallic Surfacers, above, are described, as fine metal particles suspended in a water soluble acrylic binder. You can make something similar to the surfacers using atomized metals and acrylic paint.

## **Sophisticated Finishes Antiquing Solutions (from the manufacturer)**

- For centuries, artists have embellished their metal works with a greenish, bluish, or rust patina. Adding depth, texture and a stately charm, patina finishes add elegance to art and design pieces.
- Sophisticated Finishes bottled the natural oxidation process in our Patina Antiquing Solutions. In just hours, our unique blend of mild salts and oxidizing agents in a water-based mix, creates a beautiful patina finish that can that can take years to form naturally.
- Transform sculptures, fountains, light fixtures, or virtually any indoor or outdoor design feature with a patina finish. Our Antiquing Solutions react with our Metallic Surfacers or genuine copper, brass, bronze or iron.

## **Sophisticated Finishes Primer and Clear Sealer (from the manufacturer)**

- A two-in-one product, our primer and clear sealer first prepares the surface of your piece for metallic surfacing then protects the finish created by our Metallic Surfacing or Patina Antiquing Solutions.
- It is a 100% acrylic sealer and works well on most surfaces from porous to slick. **It is not**, however, a rust inhibitive primer and will not prevent the appearance of rust on iron or steel surfaces

# Reactivity Chart

## Reactive Metallic Surfacers

The metal flakes in the paint will oxidize when treated with one of the Antiquing Solutions.

Metallic Surfacer	Patina Solutions	Tint Solutions
Copper	Patina Green / Patina Blue	
Blonde Bronze	Patina Green	Burgundy Tint
Blackened Bronze	Patina Blue	
Statuary Green Bronze	Patina Blue	
Gold	Patina Green / Patina Blue	Burgundy Tint
Rose Gold	Patina Green	Burgundy Tint
Rich Gold	Patina Green	Burgundy Tint
Iron	Rust	
Platinum	Patina Green	

## Non-reactive metallic surfacers (will not oxidize)

Metallic Surfacer	Patina Solutions	Tint Solutions
Steel	Non-Reactive	Black Tint / Burgundy Tint
Pewter	Non-Reactive	
Silver	Non-Reactive	Black Tint / Burgundy Tint
Silver Blue	Non-Reactive	Black Tint / Burgundy Tint
Cobalt Blue	Non-Reactive	

## Real Metals (sometimes are reactive in a different way than the same metal surfacer)

Real Metal	Patina Solutions	
Iron	Rust	
Steel	Rust	
Copper	Patina Green or Patina Blue	
Brass	Patina Green or Patina Blue	
Bronze	Patina Green or Patina Blue	

### ***On real copper / brass / bronze***

The Rust Antiquing Solution, which is slightly milder than the Patina Green Antiquing Solution, produces a more predictable green patina than the patina solution. Frequently the green patina solution when applied to real copper/ brass / bronze can "burn" the surface and produce a brown or black patina rather than the desired green look.

***Patina Green versus Rust***

There is not much difference in the formula between the Patina Green Antiquing Solution and the Rust Antiquing Solution and as it is the metal that determines if you get a rust or patina finish. You can safely use the Rust Antiquing Solution as a substitute for Patina Green should you be working with both Iron and the other reactive Metallic Surfacers.

***Patina Blue***

The Patina Blue Antiquing Solution produces a strong blue patina and is the patina of choice for the very dark Blackened Bronze and Statuary Green Bronze Metallic Surfacers. The lighter patina green color on these dark metals frequently ends up looking somewhat gray or white (a look many like).

***Mixing Antiquing Solutions***

Customers frequently ask if they can mix the Patina Antiquing Solutions together. The answer is that the color of the patina is directly related to the ph strength of the solution. Mixing patina green and patina blue together will result in a ph that is totally different from either of these two solutions making the resulting patina color and/or reaction difficult to predict. Customers have called to report great results and others have called with disappointing results.

# Save Your Jewelry

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Please, remove all metal jewelry and any metal gadgets that you do have damaged.

**The patina and rust solutions are VERY corrosive.**

# **Avoid Cross Contamination**

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**This is important if you don't want to ruin your materials!!!!**

Always pour a small amount of either the Metallic Surfacer or an Antiquing Solution into a clean separate container.

Dip a brush into that container and only that container.

Dip each brush into it's own cup of water to clean it.

Never dip your brush directly into the product bottle.

Never pour unused material back into the bottle.

If the Metallic Surfacer becomes contaminated a small drop of one of the solutions,  
**it can quickly oxidize in the bottle or  
can ruin it completely  
and you will be left with a lump of  
solid sludge.**

The patina antiquing solution can become diluted and the ph will be unlikely to have the desired affects.



# Rust:

## Step 1: Preparing Surfaces

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### General Cleaning and Priming

1. Thoroughly clean surface. Surfaces must be free of loose material, dirt, oil and grease
2. Painted surfaces and surfaces with good adhesion properties to not require priming.

### Determining the Correct Primer

<p style="text-align: center;"><b>Porous Items</b></p> <p>Cement, Plaster or Unpainted wood: <b><i>Priming highly suggested</i></b></p> <p>Without priming, metallic surfacer will adhere quite well. However, the item will absorb a large amount of metallic surfacer, which will soak in, requiring more coats.</p>	<p style="text-align: center;"><b>Glossy / Slick Items</b></p> <p>Plastic, Baked Enamel, Glass, PVC: <b><i>Priming necessary</i></b></p> <p>For some high gloss surfaces special primers or roughing of the surface with sandpaper may be required</p>
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3. Apply appropriate primer, if needed, allow primer coat to allow to fully dry overnight.

### Cleaning/Primer Procedure for Genuine Iron or Steel

There are two approaches to rusting genuine iron or steel:

1. One is to apply the Rust Antiquing Solution directly to the iron or steel.
2. If you do not wish the metal to rust directly, you should first prime the surface with rust inhibiting primer. Then the Iron Metallic Surfacer can be applied.

1. Clean surface of loose debris, dirt, grease, oil, paint, lacquer or varnish. Mill scale on iron is always a concern and must be removed.
2. If you want to rust the metal, directly, no primer is needed and no Iron surfacer will be applied.
3. Otherwise, apply high quality rust inhibiting primer to prevent rust from erupting up through the paint. Pay close attention to weld joints.
4. When using a ***solvent*** or ***spray can rust primer*** allow the primer to cure for a full 24–48 hours before applying the surfacer.

## Step 2: Iron Metallic Surfacers

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There are two approaches to rusting genuine iron or steel:

1. One is to apply the Rust Antiquing Solution directly to the iron or steel. In that case, you will skip this step.
2. If you do not wish the metal to rust directly, you should first prime the surface with rust inhibiting primer. Then the Iron Metallic Surfacers can be applied.

*If applying metallic surfacers outdoors, do not use if freezing or wet weather is expected within 48 hours.*

1. Shake or stir the Rust antiquing solution before applying to ensure metal particles are well distributed. Shake or stir, then shake and stir some more.  
*If you find there is a hard chunk at the bottom of the bottle, the chemicals have been contaminated and can not be used.*
2. Apply first coat, using a disposable brush.
3. Allow to dry completely.
4. Apply the 2<sup>nd</sup> coat and allow it to dry completely.
5. The longer the 2<sup>nd</sup> coat dries, the darker the rust color will be. 30 minutes for a light orange rust; 12- 24 hours for a deep red rust.

*Clean up of these chemicals, can be done with water.*

## Step 3: Applying Rust Antiquing Solution

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*After the Iron Metallic Surfacers dries the desired amount of time (if it is being used), then you can continue.*

1. Brush or spray on a coat of Rust Antiquing Solution.
2. The rust will develop over the next 4 to 6 hours.
3. Once fully developed, additional coats may be applied to deepen the rust.
4. Since a true rust is produced, some rub-off or water staining may occur. See later discussion regarding sealing.

# Verdigris Patina: Step 1: Preparing Surfaces

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## General Cleaning and Priming

1. Thoroughly clean surface. Surfaces must be free of loose material, dirt, oil and grease
2. Painted surfaces and surfaces with good adhesion properties to not require priming.

### Determining the Correct Primer

<p><b>Porous Items</b> Cement, Plaster or Unpainted wood: <b><i>Priming highly suggested</i></b></p> <p>Without priming, metallic surfacer will adhere quite well. However, the item will absorb a large amount of metallic surfacer, which will soak in, requiring more coats.</p>	<p><b>Glossy / Slick Items</b> Plastic, Baked Enamel, Glass, PVC: <b><i>Priming necessary</i></b></p> <p>For some high gloss surfaces special primers or roughing of the surface with sandpaper may be required</p>
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3. Apply appropriate primer, if needed, allow primer coat to allow to fully dry overnight.

## Cleaning/Primer Procedure for Genuine Iron or Steel

1. If you do not wish the iron or steel to rust directly, you should first prime the surface with rust inhibiting primer.

## Cleaning/Primer Procedure for Genuine Copper, Gold or Bronze Metal

<p><b>Non-Rustable Metal</b> Copper, Brass, Bronze, Aluminum: <b><i>Priming highly suggested</i></b></p>
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1. Clean metal surface of loose debris, dirt, grease, oil, paint, lacquer or varnish. Many copper objects in particular are coated with lacquer to prevent any patina development. This can usually be removed with paint remover and/or steel wool.

*Some objects have a baked on clear finish that is virtually impossible to remove. If your "old" copper, brass or bronze metal is nice and shiny that is usually an indication that some sort of protective coating is on the surface and these chemical processes are unlikely to work.*

2. Lightly buff the metal to scuff the surface. Using 0000 Steel Wool dipped in a mild TSP Solution works well for removing most dirt and grease.
3. Then rinse the surface with clean water.

## **Step 2: Applying Metallic Surfacers**

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***If applying metallic surfacers outdoors, do not use if freezing or wet weather is expected within 48 hours.***

1. Shake or stir metallic surfacers before applying to ensure metal particles are well distributed. Shake or stir, then shake and stir some more. If you find there is a hard chunk at the bottom of the bottle, The chemicals have been contaminated and can not be used.
2. Apply first coat.
3. Allow to air dry 30 to 60 minutes under typical situations.
4. Apply additional coats as necessary to achieve desired results. (Most surfaces will require two coats for optimal results.)

**NOTE:** If you are planning to use with a Patina Antiquing Solution, read application directions in the sections below very carefully in advance. ***It is important to apply the antiquing solution to the Metallic Surfacers before the final coat fully dries.***

## **Step 3: Create a Patina using Patina Green Antiquing Solution**

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***Consider environmental factors such as surface temperature, air temperature, humidity and air circulation which will all affect these chemical reactions.***

### **On Copper, Gold or Bronze Metallic Surfacers**

1. For a more dramatic and brighter patina, apply the Patina Antiquing Solution while the Metallic Surfacers is still very tacky (3-5 minutes) **OR** for a milder effect, apply over Metallic Surfacers when the second (or final) coat of surfacer is still tacky, generally within 3-15 minutes of application.

For a deep, colorful patina, apply a heavy first coat **OR** for a lighter finish apply a light first coat, allow to oxidize for a few hours, then apply a second coat if desired.

2. If overnight little or no patina has developed, then the Metallic Surfacers were too dry when the Patina Antiquing Solution was applied. To reapply, clean the surface by lightly buffing or sanding the surface clean and begin the process again by applying a new coat of metallic surfacer applying the patina solution earlier.
3. The Patina Antiquing solutions are very forgiving. If you have more patina than desired, simply reapply 1-2 thin coats of the Metallic Surfacers to absorb and mute the patina colors. **Do not put your paint brush into your main source of paint while doing this, as you risk triggering the oxidation of all your paint.**

*Blackened Bronze reacts best with Patina Blue. Create beautiful aqua blue colors by applying the Patina Blue immediately after your final wet coat of Blackened Bronze. If you try to use Patina Green on Blackened Bronze you will not get a green patina color, but instead will have a grey washed color effect.*

### **On Genuine Copper, Gold or Bronze Metal**

1. Test a small, discreet area before applying to entire piece.
2. If using Patina Blue directly on copper, brass or bronze, water down the solution by 40%.
3. Patina Green should not need to be watered down for direct use on copper, brass or bronze. If you get a brown or black patina, or if the green patina that develops flakes off in large chunks try adding water to reduce the strength. You may dilute to 50% of full strength.
4. Apply several light coats or one heavier coat.
5. Allow the oxidation to work its magic. It can take up to 3 days for the full patina color to develop.

# Oxidized Patina

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For the most part this follows the same steps as for the Verdigris Patina. However, instead of using the Patina Green Solution, the Patina Blue Antiquing Solution is used instead.

When using a Metallic Surfer, it is allowed to dry completely between coats. However on the last coat, let it go only until tacky, about 10 - 20 minutes.

On genuine copper, brass or bronze, Patina Blue Antiquing Solution can be used to produce a patina directly. Priming considerations are the same as for Patina Green, with regard to genuine iron or steel.

Once, the Patina Blue Antiquing Solution is applied, the oxidation process will begin immediately and the beautiful blue patina will develop over the next 4- 6 hours, and be fully developed in 24 hours. As a true oxidized patina is produced, some rub-off or water staining may occur. some rub-off or water staining may occur. See later discussion regarding sealing.

# Sealers

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*A clear sealer is recommended when the piece is exposed to water or comes in contact with people or clothing as the patina can flake or run off staining surrounding surfaces.*

## **Sophisticated Finishes Primer and Clear Sealer**

- Technically there is no reason to seal a patina or rust finish. Even in outdoor use the final finish seldom washes completely off and is generally considered 'weatherproof'. Using a sealer on a Patina or Rust finish will affect its texture and color. Still, under certain circumstances, sealing is the best way to protect your work. The Patina or Rust finish you achieve using the Antiquing Solutions is the same as that produced in nature. They may stain surfaces that receive water run off from the rain. Sealing will help prevent the finish from bleeding or flaking when it comes into contact with water, skin or clothing.
- If you decide to seal, allow the Patina or Rust finish to fully mature over 3 days before applying a coat of Sophisticated Finishes Primer and Clear Sealer or any other primer. Any high quality acrylic primer will work fine or you may use a high quality solvent-based sealer. Do not use a urethane-based sealer as the salts and acids in the patina and rust surface will cloud and eat through urethanes.
- All sealers will alter the appearance to some extent and you should always test before sealing a project. All sealers will instruct you to make sure the surface is free of all dust, dirt and loose material before sealing. A patina or rust finish by definition is a loose and unstable surface. Sealing such a surface is thus never going to be totally effective. For a more lasting and total solution you may wish to test a high quality two-part epoxy sealer. These sealers are not as dependent on having a stable surface as other sealers and have proved the most successful at totally protecting nearby surfaces from drip staining. A two-part epoxy sealer is also the longest lasting and most durable sealer for high contact applications such as door handles or kick plates.

# Purchasing Information

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## Sophisticated Finishes: Where to Purchase – General Retailers

Dick Blick

Pearl Art Supplies

MacPherson's

Jerry's Artarama

Amazon

[www.misterart.com](http://www.misterart.com)

[www.overstock.com](http://www.overstock.com)

[www.texasart.com](http://www.texasart.com)

## Sophisticated Finishes Triangle Coatings Store (manufacturer)

On-line

<http://www.tricoatstore.com>

1-800-895-8000

Store Location:

4763 Bennett Drive

Livermore, CA 94551

1-925-583-0800

FAX: 1-925-583-0880

## Douglas and Sturgess, Inc. (atomized metals)

<http://www.douglasandsturgess.com/>

### ***Richmond, California***

Retail Store, HQ, Warehouse, Offices,  
Online Fulfillment, Shipping and  
Receiving

1023 Factory Street

Richmond, CA 94801

Phone: (510) 235-8411

Fax: (510) 235-4211

### ***San Francisco, California***

Retail Store Only

730 Bryant Street

San Francisco, CA 94107

Phone: (415) 421-4456

Fax: (415) 896-6379



# Additional Reference Materials

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## Video

Sophisticated Finishes for Warhammer terrain - Rust

<https://www.youtube.com/watch?v=RbUH8kr6gw0>

## Reviews, Competitors and Example Projects (no Halloween)

<http://forum.vectric.com/viewtopic.php?f=27&t=13690>

<http://magazine.scrapbooknewsandreview.com/index.php/combo-reviews1/item/113-sophisticated-finishes-patina-green-set>

Some beautiful projects: <http://frenchlaundryblog.blogspot.com/2011/04/playing-with-sophisticated-finishes.html>

Review from the steampunk perspective:

<http://fichtenfoo.net/blog/tag/sophisticated-finishes/>

Includes other chemicals you can concoct at home:

<http://gomakesomething.com/ht/age/rust-guide/>

What's the Diff? Examining Current Patina/Color Products: Swellegant, Gilder's Paste, Vintaj/Ranger Designer Inks Dec. 6, 2012: [What's the Diff? Examining Current Patina/Color Products: Swellegant, Gilder's Paste, Vintaj/Ranger Designer Inks Dec. 6, 2012](#); Site also has videos.

## Sophisticated Finishes Web Sites

Sophisticated Finishes Instructions <http://www.patina.com/instructions.html>

Sophisticated Finishes Metallic Surfacers including color pictures of each, and a link to purchase at Triangle Coatings on-line store <http://www.patina.com/metallic-surfacers.html>

Sophisticated Finishes Antiquing Solutions including color pictures of each, and a link to purchase at Triangle Coatings on-line store <http://www.patina.com/patina.html>

Sophisticated Finishes Frequently asked Questions <http://www.patina.com/faq.html>

Sophisticated Finishes Reactivity Chart <http://www.patina.com/reactivity-chart.html>