



Varnish and Varnishing #11



The **primary reasons** to varnish are

- to deepen ([saturate](#)) the colors.
- to create an even gloss over the entire picture surface.
- to make a surface conservators can easily clean.

Any dirt that attaches to the painting will be on the varnish layer and not on the color or glaze layers. When the painting becomes so dirty that it needs cleaning, the dirt can be removed with the varnish.

Varnishing is a mystery to many artists.

Do artists HAVE to varnish? No, varnishing is primarily an aesthetic decision. Traditionally artists varnish to unify the surface and saturate the colors. An added benefit is a barrier to dirt (in the past painters needed to protect their work from environmental dirt when their patrons burned coal and wood.)

Can varnishing adversely affect a painting by radically changing the look of the surface?

Most Impressionist paintings were not varnished by the artists. They did not want the yellowing that comes from the use of natural resins such as damar. These painters preferred a soft matte surface. Many contemporary artists prefer a flat matte surface.

Since the beginning of oil painting in the early 1400's, artists have invented multiple ways of doing most everything. Compound hundreds of artists, their unique techniques and available materials over more than 500 years and **you can easily get confused**.

Additionally, varnishing fell out of favor during the 20th century. A new generation of art educators may never have learned about contemporary varnishes or how to apply varnishes. The fact that varnishing protects the paintings so they can be cleaned was not important to painters. How your paintings look when they leave your studio today is what is important to artists.

Until the mid-20th century, varnishes were made from natural resins. Primarily copal and mastic were used until early in the 19th century when dammar resin was introduced into Europe. Natural resins are all types of tree sap. All natural resins are unstable—they yellow, darken, become brittle with age and are difficult to remove. These resins are responsible for the "gallery tone," the yellowish color of old paintings. On the positive side, dammar varnish looked great on paintings when freshly varnished.

Writing in *Conservation Science Unvarnished*, University of Amsterdam, October 30, 1997, E. René de la Rie, Ph.D. of National Gallery of Art states:

"Natural resins, such as gum mastic, and since the 19th century also dammar, were and are uniformly appreciated for their optical and handling properties. Unfortunately, these tree exudates, chemically belonging to the class of triterpenoids, are also among the least stable of artists' materials. Particularly, when applied as a thin layer onto the surface of a painting, rapid degradation occurs due to oxidation and other reactions. Eventually, the varnish will obscure the paint layers because of loss of transparency, advanced yellowing and cracking."

Dr. de la Rie has studied historic and contemporary artist's varnishes with the highest tools of science for 20 years. In the mid-1990's, he formulated a new varnish for paintings conservators from a low molecular weight hydrocarbon resin that is water clear. Like painters, conservators want to reduce their exposure to strong solvents. So fortunately this new varnish is easy to remove with milder solvents than the solvent required to remove dammar from old paintings. After seeing the marvelous effects of his new museum varnish, I asked him to help me formulate this new resin as Gamvar Picture Varnish for studio use.

Gamvar's Component System Gamvar is packaged as two components that when mixed together make the varnish. According to Dr. de la Rie all varnishes should be mixed and used "fresh." He discovered that varnishes become less stable after they are mixed. In other words—a freshly mixed varnish ages better than a varnish that was made up years ago. This is why Gamvar is a component system. Painters mix up the Gamvar varnish fresh and put the date you mixed the varnish on the jar. Then you know how old your varnish is. I use my Gamvar within a year after it is mixed. If you prefer using natural resin varnishes at least use them when they are freshly made. Not freshly bought, freshly made from dissolving

resin into solvent.

(Note to conservators: Gamvar contains a hindered amine light stabilizer (HALS). The HALS repairs damage that can happen to varnishes from exposure to UV. After mixing, the HALS in Gamvar is at its maximum effectiveness for a month.)

Gamvar's values:

1. Low molecular weight. Like natural resins, the hydrocarbon resin component of Gamvar has very small particle sizes (about 3000 times smaller than a single particle of acrylic resin). Because of low molecular weight, varnishes made from Gamvar resin and natural resins conforms to the contours ("the geography") of an oil painting. Conversely acrylic varnishes are high molecular weight, which means the varnish fills in the geography of a painting. And can make a painting look like it was wrapped in plastic.
2. Water clear. Unlike dammar or other natural resin varnishes, Gamvar is water clear when you apply it and remains water clear. Natural resins darken and yellow as they age.
3. Easy to remove. Gamvar varnish is easy to remove with mild solvents.

TYPES OF VARNISHES

Natural Resin varnishes:

dammar varnish is the most commonly available today. To make varnish, natural resins are dissolved in turpentine. All natural resins, including mastic and copal, make varnishes with a high gloss, and slightly yellow color when fresh. These varnishes become progressively yellower and darker as they age. To remove them, conservators must use very strong solvents. This can endanger delicate glaze layers since it can be impossible to determine where the varnish ends and the glaze layers begin.

Synthetic Resins:

Gamvar is based on a hydrocarbon resin that has a similar look to natural resins. It dissolves in a mild mineral spirit. Gamvar stays water clear as it ages. Conservators can remove Gamvar with mild solvent so none of the glaze and paint layers are endangered during cleaning.

There are other types of synthetic resin varnishes on the market today, but the hydrocarbon resin that is the basis of Gamvar is so superior that we won't take the space to discuss the others.

Acrylic Resins:

These resins are made from resins with high molecular weight. The varnishes make thicker coatings and are generally less glossy.

Using Galkyd to make a clear glaze layer:

Rather than apply a varnish, some painters prefer to apply [Galkyd](#) or [Galkyd Lite](#) as a clear glaze layer to unify the surface. While this is an acceptable practice, applying Galkyd is not applying a varnish. By our definition, a varnish is REMOVABLE. A clear glaze layer is a paint layer and not removable.

How long should one wait to varnish a painting? You can safely varnish when the painting is dry. But **when is a painting dry?**

Some paintings are dry enough to varnish in two weeks.

If you paint thinly with fast drying colors using a fast drying (alkyd) medium, in a warm and

dry climate, then the painting may be ready to varnish in two weeks.

Some paintings may not be dry enough to varnish after two years.

If you painted with Alizarin Crimson in a layer a quarter inch thick using a poppy oil based medium then the painting may not be ready to varnish in two years, if ever.

How to tell if a painting is ready to varnish is easy—just touch it.

If there are impasto areas, gently press your fingernail into that impasto. If it is firm underneath the top layer of the painting then it is ready for varnishing.

In general we recommend painters using alkyd resin painting mediums wait three months before varnishing. Painters using an oil/dammar mix in their painting mediums should wait six months. But, if an artist has a painting that is only dry on the surface and that painting is going to leave the studio and never return, we recommend the artist apply a thin coat of Gamvar Picture Varnish. This will slow down drying, but the painting will continue drying through the varnish layer.

How to Varnish

First choose a varnish brush. Your varnish brush should not be used for any other purpose so it is always clean—no color.

Soft brushes generally leave thicker layers of varnish.

Stiff bristle brushes can leave very thin coats through a gentle scrubbing motion.

Bubbles will form when applying Gamvar but they will quickly break as the varnish dries.

Most artists apply one fairly thick coat of varnish. But the varnish layer can be as personal to your picture as any other part of the painting process.

Thicker coats will tend to be glossier.

Thin coats conform much better to the exact surface ("geography") of your painting.

Thin coats look like they reside on the picture plane.

If you prefer the look of a thicker varnish, we recommend that you apply two thin coats rather than one thick coat. Two thin coats will dry faster and harder than one thick coat. One thick coat can trap solvent deep in the varnish layer and prevent the varnish from hardening.

Controlling Gloss

All resin varnishes are glossy. Acrylic resins slightly less so. There are four separate approaches to decreasing gloss.

1. Incorporate a small amount of wax into the varnish. As a starting point I recommend you add about a ¼ teaspoon of wax to 2-fl. oz of Gamvar. We do not recommend that you matte the whole volume of varnish at once. Matte only the amount you plan to use over a short period of time (three months).

In a clean container add the wax to a small amount of mixed varnish, using a palette knife break up the wax from a paste into a slurry. Then add the slurry to volume of varnish to be matted. Shake vigorously. Look through the jar. You should not see any large particles of wax in the varnish. If you do, shake some more. Apply the varnish to a test painting to make sure you have the correct level of sheen.

Remember you will not be able to judge the sheen until the varnish has dried. If it is too glossy then add more wax, if too matte, add more varnish. You will not be able to make a matte varnish using this method. This is merely for reducing gloss. If a

matte surface is desired use method #3 or #4 below.

2. Brush the varnish until it dries. Gloss is purely a surface phenomenon. If the surface is microscopically smooth, it will also be glossy. By brushing the varnish till it dries the surface is slightly disturbed and will not be highly glossy.
3. Use [Cold Wax Medium](#) as a matte varnish. Apply a thin coat with a soft lint free cloth like you would polish antique furniture. Let the wax dry or buff lightly to restore some luster. This looks best when, at the end of the application, the wax is stroked in one direction.
4. Acrylic resin varnishes are available in a matte form. They have silica in the formula, which makes the surface rougher and therefore matte.

Potential Problems with Varnishing

Dust and dirt: Paintings should always be dust and dirt free BEFORE varnishing. If the painting is relatively new then a through dusting with a dry clean brush or feather duster should be sufficient.

But if the painting is years old then it should be lightly cleaned using a mild solvent ([Gamsol](#) or other quality pure odorless mineral spirits) to dissolve and remove any dirt, dust, smoke, or cooking vapors that have accumulated on the surface.

These preparations are especially important for smooth surface paintings. They should be totally dust free, the brush should be meticulously clean, and the work area should be dust free. In addition there should be no circulating fans going or it will be impossible to create a pristine surface.

Sinking in: If one uses a lot of Galkyd as a medium the surface will be pretty uniform. But if one uses only solvent as a medium, or paints using no medium at all then the surface will vary in its absorbency. This means that parts will be glossy, part matte. And these differences can affect how varnish takes to a painting.

If you put one layer of varnish on a painting and only parts of the painting become glossy, then some areas are absorbent and they have absorbed the varnish into the surface.

To solve this problem, conservators use an interesting technique. They varnish the whole painting with a light coating of varnish. Let that dry. Then selectively varnish different areas of the painting until the whole surface appears uniform. Some areas end up with one thin layer. Some areas are coated with two, some with three layers.

Beading up: Thin varnishes can bead up on slick paintings, just like water beads up on a newly polished car. The issue is surface tension.

To get varnish to lay down if it beads up try one of these three methods:

- Dilute the varnish with approx. 10% more solvent
- Brush the varnish vigorously as it dries
- "Open" up the area of the painting where the problem is by gently massaging the area with a strong solvent such as mineral spirits. This will microscopically roughen the surface so that the varnish can grab onto the surface and lay down evenly.

Retouch Varnish and Oiling out

A typical oil painting is made with a palette of artists' grade oil colors. Each color has different oil to pigment ratio and is used with varied amounts of painting medium. As a

painting dries, parts of the painting look glossy and some look matte. Many artists want to even out these differences in the MIDDLE of the painting process.

There are two traditional techniques that have been used for centuries to deal with this.

One is the use of retouch varnish. We discourage the use of retouch varnish within paint layers because even a very thin coat of varnish adds soluble material in between paint layers. The retouch layer may interfere with the paint layers bonding together.

A better method that we recommend is called "oiling out." To deepen or enliven color during the painting process apply a very thin layer of oil, or your painting medium to those "sunken" areas. Apply the medium; wipe it all off except for a thin layer. Then paint right into this layer before it dries. This technique puts a real paint layer inside the painting so all layers will bond together as one.

Before a FINISHED painting is completely dry and ready for a varnish application, artists can apply a light coating of retouch varnish to even out the surface. Oil colors will continue to "dry"(oxidize) through a very light layer of varnish. To make a retouch varnish, add one part Gamvar to three parts Gamsol or other brand of high quality OMS.

Removing Varnish:

Gamvar is easy to remove if you decide you want to change the varnish layer.

- Cover your hands with barrier cream or a "green" safety glove.
- Dip a corner of CLEAN LINT FREE cloth into odorless mineral sprits (Gamsol) or other mild mineral sprit.
- Gently redissolve the varnish in small areas at a time. The varnish will dissolve in just a few minuets of gentle rubbing.
- Remove the dissolved varnish with a second clean dry cloth.

If you need to remove dammar or other natural resin then you must use a strong solvent. If the varnish layer is pretty fresh then it can be removed with turpentine or a 100% aromatic mineral spirit. If the varnish is old then we recommend that you take the painting to a conservator or paintings restorer since it may require acetone to remove the varnish. Before removing other types of varnishes, contact the manufacturers for detailed instructions.

If in the process of removing varnish the color begins to dissolve you should immediately stop the dissolving process by soaking up any solvent on the painting.

Either the solvent you are using is too strong and you must use a weaker solvent. Or the painting is not dry enough for this process and you should seek the help of a trained conservator or restorer.

If you have any further questions about varnish and varnishing, please feel free to [contact](#) us.

Sincerely,

Robert Gamblin

A handwritten signature in black ink that reads "R Gamblin". The letters are cursive and somewhat stylized, with the first letter 'R' being particularly large and prominent.

Thank you very much for your interest in our Gamblin Studio Notes.
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