

## PRODUCT INFORMATION SHEET



### POLYMER VARNISH

*Polymer Varnish - Gloss with UVLS: Product #07710*

*Polymer Varnish - Satin with UVLS: Product #07715*

*Polymer Varnish - Matte with UVLS: Product #07720*

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### PRODUCT DESCRIPTION

**GOLDEN Polymer Varnish with UVLS** (Ultra Violet Light Stabilizers) is a water-based acrylic polymer varnish formulated to provide additional protection from ultraviolet radiation. This helps delay the inevitable fading that occurs in materials that may be fugitive in nature.

Polymer Varnish is designed as a topcoat for acrylic paints and *offers a removable protective surface to the relatively soft acrylic paint layer*. It has a harder film than most acrylic paints, which diminishes the susceptibility of the surface to dust and dirt, and provides increased protection from scratching, marring and moisture. It has adequate flexibility to withstand normal handling conditions, including loose rolling. **For interior use only**. The product is not recommended for use on furniture or other surfaces subject to physical contact during use.

***Polymer Varnish remains soluble in alkaline solvents, such as ammonia.*** This means the varnish can be easily removed; taking with it any accumulated surface contamination without damaging the painting surface. The use of such a removable varnish provides a valuable tool to anyone trying to restore or clean a painting.

Polymer Varnish (Gloss) dries to a highly reflective finish. Polymer Varnish (Satin) offers moderate reflection, similar to most matte varnishes. The Matte is exceptionally flat. The different finishes can be intermixed, or used sequentially, to achieve the desired sheen. Note: Polymer Varnish (Satin) and (Matte) will lighten dark value colors, which is typical of non-gloss varnishes.

### TEST FOR YOUR APPLICATION

Prior to actual use, it is very important to experiment with Golden varnishes on test pieces to become aware of how they perform and how they alter the surface appearance of paintings. For best results, apply to a test piece that is similar in composition as the artwork to be varnished. This will help ensure that all variables are accounted for, and a successful varnish application will be achieved.

### ISOLATION COAT

Only intended for acrylic paintings, do not use on oil paintings.

For future conservation and varnish removal purposes we recommend the use of an isolation coat prior to varnishing. An isolation coat is a permanent, non-removable coating that serves to physically separate the paint surface from the removable varnish. This will help protect the surface if the varnish is ever removed and make future cleaning and conservation easier to avoid working directly on top of the pigmented part of the work.

Therefore, even if painted with delicate washes or large areas of colors that could potentially bleed, a clear barrier would safely cover the painted surface. It will also seal absorbent areas, which will result in a more even application of the varnish. In the event that no varnish gets applied, the isolation coat serves to decrease the water sensitivity of the paint surface, affording protection during routine cleaning/dusting.

Given the current state of conservation science, we feel the use of an isolation coat provides the most protection. However, isolation coats are also significant and permanent additions to a painting and inevitably will cause changes in the painting's surface qualities. Whether these changes are acceptable is an aesthetic decision that each artist needs to make after sufficient testing. In addition, since it is non-removable, any mistakes or problems during this procedure cannot be easily corrected and there is always an element of risk that needs to be considered. We strongly encourage the artist to practice these procedures thoroughly so they feel confident and become familiar with any unforeseen problems. **If you have any questions or concerns regarding the proper use or application of an isolation coat, please call Golden's Technical Support Department at (800) 959-6543.**

For brush application, the appropriate isolating medium can be made by diluting Golden Soft Gel Gloss with water (2 parts by volume Soft Gel Gloss to 1 part water). If a spray application is desired, a 2:1 mixture of Golden GAC-500 to Transparent Airbrush Extender can be applied with an airbrush, touch-up spray unit or commercial spray equipment. **The absorbency of the surface will dictate the number of isolation layers required.** For relatively non-absorbent surfaces, as is the case with a uniform paint layer, one coat brush applied or two coats spray applied are recommended. For more absorbent surfaces, which tend to be very matte, it is recommended to apply sufficient isolation coats to achieve a satin sheen on the surface. This may require two or more brush applied coats or three or more spray applications.

**The isolating layer is of critical importance when applying a matte varnish over an absorbent surface to prevent a cloudy or "frosted" appearance from occurring.** This frosted appearance results from the varnish and solvent being absorbed into the support, while the matting agent remains exposed on the surface. While we have carefully selected the matting agent that is in Golden varnishes to be as transparent as possible, it is still a dry particulate material. When the matting agent is deposited onto the surface, and is not a part of a continuous varnish layer, it appears as a white solid. If varnishing water-soluble paints, including watercolor, gouache and tempera, the isolation coat must be sprayed on in very light layers to avoid solubilizing the paints, which could cause loss of distinctness of the underlying image.

## PRODUCT APPLICATION

**POLYMER VARNISHES MUST BE THINNED BEFORE USE.** They have been formulated thicker than the traditional application viscosity to maintain an even suspension of matting agents in the Satin and Matte finishes, which ensures more consistency in surface reflectance as the varnish is used. It also allows the varnish to be applied with minimal foam generation. Foaming can be a major problem with most water-borne acrylics, but when properly thinned, the Polymer Varnish is able to release all foam before drying.

**It is preferable to brush or spray apply Golden varnishes.** Other methods, such as sponging or rolling, are not recommended, as they may result in problems such as: foaming, loss of film clarity, non-uniform coverage, excessive film build, sagging, or deposition of materials from the application tool.

### Brush Application

Use a high quality bristle brush, such as those made by Purdy or Wooster, or for more control and smoother application, a wide thin flat color-wash brush. The Da Vinci Cosmotop Spin brushes are an example of this type. The size of the piece to be varnished will determine the size of the varnish brush. Work from a shallow container to help control brush loading. The varnish solution should wet only the lower 25-30% of the length of the bristles. **It is always best to apply the varnish on a horizontal surface in order to minimize running or sagging.** If vertical application cannot be avoided, as with a mural, it is extremely important that the varnish be thinly applied. In either case, it is better to apply two or three thin coats with sufficient drying time in between, rather than one thick coat of varnish. The latter will take longer to cure, staying soft for some time, and could result in drips or a cloudy film. Apply the varnish in a manner that allows it to be brushed out to the most uniform, thinnest film possible. Mentally divide the work into regions to be covered by each loading of the brush. These may be based on a systematic grid-like sequence or may follow natural boundaries of the piece. Maintain an even application by working from the center of each region outward. Lightly overlap into still wet,

adjacent sections. When applying a satin or matte varnish, never apply more than two coats. If multiple coats are desired, start with the gloss varnish to build up and establish the multiple layers, then finish with one or two coats of the satin or matte finish. A thick film of these reduced sheen varnishes will result in film cloudiness, and loss of clarity.

### Spray Application

**The best way to achieve an even coating of varnish is to spray apply.** This is particularly true for impasto surfaces. Spray application is required for any surface where the paint film is fragile, such as gouache, and should not be touched by application tools. Spraying is also a useful technique for creating a matte surface. The size of the surface to be sprayed will determine the best type of spray equipment to use. These varnishes can be sprayed from an airbrush, airless or air pressured spray equipment, or refillable aerosol equipment. In preparation for spraying, make sure all equipment is free of dirt. Work in an area free of dust and dirt and keep work off the ground when spraying. **Spray three to four light even coats instead of one or two thicker applications,** allowing enough time for drying between coats (1-4 hours, until surface is tack free). Release the spray trigger if the motion of the airbrush is stopped during application in order to avoid an uneven build of varnish in one spot. **Maintain uniform distance from the surface,** and avoid the tendency to use an arcing motion. Make straight passes across the work, changing direction once the spray has cleared the edge of the piece being varnished. Slightly overlap the spray pattern with each pass, until the entire piece has been covered. To aid in achieving a more even application, turn the painting 90 degrees in order to apply the subsequent coat perpendicular to the previous one. A typical spray application lays down a film only 1/6 to 1/4 the thickness of a brush coat application. **If maximum protection is required of the varnish layer, apply multiple coats.** This is especially important when protecting colorants that are not inherently lightfast, as the thicker the total varnish film, the greater the protection from ultraviolet radiation. Because it is not recommended to apply several coats of a satin or matte finish, underlying layers should be established using a gloss varnish.

### Cleanup

Clean all equipment immediately following application. **If tools are wet, Golden Polymer Varnish can be removed with water.** Ammoniated glass cleaner or a 1:1 solution of household ammonia to water may be used if the varnish has set.

### Drying Time

**The isolation coat should cure for 1 day before varnishing.** When building up multiple coats, allow for 3 - 6 hours in between coats. Gently inspect the surface for tack, which may signify that the coat is not sufficiently dry. Let varnish cure several days before packing or transporting art. During transportation and storage, avoid contact of the surface with packing materials, including glassine, bubble wrap or any other plastic. **NEVER STACK PAINTINGS,** whether varnished or not.

### Care and Storage

**As Golden Varnishes are removable, it is important that they not be painted over.** Paint applied over the varnish would also be potentially removable, and would pose a difficult problem in conservation or restoration attempts.

### VARNISH TROUBLE-SHOOTING

#### If milkiness or opacity occurs in varnish layer, then

- if using a satin or matte varnish, and this only occurs over dark colors, this may simply be the nature of such a reduced sheen varnish (caused by the presence of the matting agent). There is no way of applying a satin/matte finish to a dark color without lightening it (the more matte the finish, the more potential for lightening dark areas). To restore the depth of the dark colors, apply a higher gloss to restore some of the sheen.
- if this is uniform across much of area, regardless of the darkness of the underlying colors, it may be caused by moisture entrapment. High humidity or a damp surface under the varnish layer often causes loss of clarity. Using a warm, forced air source to blow across the surface should help the moisture evaporate, restoring clarity.
- if varnish is not properly thinned, or is shaken or stirred excessively, air bubbles may become trapped within

the dry film, causing a loss of clarity. The varnish must be removed.

- if a "frosted" area appears, a satin or matte varnish may have been applied over an absorbent surface (this is common for spray applications). The varnish must be removed, the surface sealed to reduce absorbency (apply gloss varnish), followed by application of a reduced sheen varnish.

#### **If reflectance is not uniform, then**

- if surface has varying absorbency, this may result in uneven gloss. Ideally, such a surface would first have isolation coat applied to provide a more uniform surface. However if varnish has already been applied, the surface must be sealed by applying 1 or more additional coats of gloss varnish, followed by the desired sheen varnish.
- improper mix of varnish. The varnish/solvent mixture was not thoroughly mixed. If different sheens were blended together (gloss with matte), they may not have been thoroughly mixed. If the diluted varnish is used over a long period of time without restirring, it may be separating (matting agents settling). To achieve a uniform finish, start with a fresh mixture of varnish/solvent (thoroughly stirred) and apply another coat (may also consider removing the existing varnish layers).

#### **If brush strokes remain, then**

- the varnish may not have been thinned sufficiently to level during application.
- the solvent was not compatible with the varnish.
- if the surface was absorbent, it may have caused the varnish to dry too quickly, and not allow it to level.

#### **When spraying, if the surface is very pebbly or textured, then**

- the varnish may have dried before reaching the surface. This could be caused by insufficient thinning (add more solvent), an extremely dry environment (add humidity, reduce heat, limit air flow) or by excessive air flow (reduce air pressure).

#### **If the varnish is sinking in and not developing sufficient gloss, then**

- the surface is too absorbent. Apply additional coats of isolating layers (only if no varnish is yet applied) or gloss varnish. Excessive dilution of varnish may also result in this problem.

#### **If the varnished surface is too glossy, then**

- apply a satin or matte finish of the same kind of varnish already applied.

#### **If the varnished surface is too matte, then**

- apply a gloss or satin finish of the same kind of varnish already applied.

### **REMOVAL PROCEDURE**

Technical Support is available to answer questions at (800) 959-6543 or by emailing [techsupport@goldenpaints.com](mailto:techsupport@goldenpaints.com).

Removing a varnish is a very consequential process that should not be taken lightly, as the appearance of the artwork can be changed or damage could result from improper handling. The task is often best left to a professional conservator, particularly with works of special significance or unknown composition. However, there are times, as when something has gone amiss in the application, that it may be appropriate for the artist to do the work.

***Golden Artist Colors Polymer Varnish films remain soluble in alkaline solutions***, the most common being household ammonia. Avoid products that have a scent added and suds-ing varieties, which may contain soap.

Before embarking on a varnish removal mission, carefully consider the materials that are to be used, and how they can be used in a safe, controlled manner. Polymer Varnish removal requires the use of ammonia, thus requiring proper personal protective equipment. Such equipment may include, an ammonia respirator, nitrile gloves and aprons, and chemical splash goggles or face shield. Also, work in an area with good ventilation.

***First, test the solvent on a small area of the painting***, or preferably on a test piece, to determine its effectiveness at dissolving the varnish.

A good procedure for removing the varnish is to start with a soft, low lint cloth (50/50 cotton/polyester T-shirt material works well). **Saturate this cloth in ammonia and lay over an area of the varnished surface.** If possible, work with the painting in a horizontal position, on a table or floor.

If the work must be done vertically, as on a wall, a method would have to be devised for keeping the saturated cloth in contact with the varnished surface. In either case, to minimize evaporation, use a plastic sheet to blanket the saturated cloth.

**Work in areas no larger than 2 square feet per application.** Larger areas tend to become cumbersome and make thorough varnish removal difficult. Allow the saturated cloth to lie on the painting for 2-5 minutes. After removing it, use a clean ammonia-dampened cloth to gently pat the surface to remove the varnish. Note: excessive force may damage the paint layers below the varnish. Repeat this process until the entire painting surface has been treated.

After a single treatment over the complete surface of the painting, some residual varnish may remain. Repeat the procedure, and continue doing so until the varnish has been sufficiently removed. Additional ammonia exposure may result in some swelling of the underlying paint layer.

## TECHNICAL DATA

**Adhesion:** Adheres to most porous, non-oily surfaces.

**Aging Characteristics :** Accelerated aging of a 2.5 mil thick film, under fluorescent UVA lamps for 400 hours resulted in no visible color change. It will remain soluble.

**Appearance:** Translucent when wet, clears upon drying.

**Applications:** Recommended for interior use only, as a varnish for acrylic paints. Also works well as a removable topcoat for GOLDEN Mineral Spirit Acrylic Paints.

**Chemical/Water Resistance:** ASTM D 1308, Open Spot Test, 6 mil drawdown on nonabsorbent surface.

Chemical Tested	Effect	
	15 minute	1 hour
Water (cold)	Transient fogging	Blanching, gloss loss
Water (hot)	Gloss Loss, softening	
Isopropanol	Blanching, softening	film loss
Ethanol	Solubilized film	
Vinegar	Major gloss loss	same
Liquid Detergent	Slight gloss changes	same
Cooking Oil	Slight gloss changes	same

**Coverage:** 400-500 sq. ft. per gal. by brush application; 800-1000 sq. ft per gal. by spray application.

**Drying/Curing Time:** Dries to the touch within 30 minutes. May be recoated after 1-3 hours.

**Flexibility:** ASTM D 522, Test Method B - Cylindrical Mandrel Test at 70 o F., 3 mil thick film passes at 4€ diameter mandrel. Adequate flexibility to withstand loose rolling and re-stretching at room temperature. Varnish film becomes more brittle below 50o F, and should not be bent or flexed under such conditions. Withstands expansion and contraction caused by changes in temperature and humidity.

**Gloss Retention:** After 400 hours UVA exposure, Polymer Gloss Varnish retained 95% of initial gloss.

**Hardness/Mar Resistance:** Relative to acrylic paint, varnish yields a slightly harder, lower tack surface, which is less susceptible to imbedding dirt. ASTM D 3363, Film Hardness By Pencil Test, Scratch Hardness is "HB".

6B-5B-4B-3B-2B-B-HB-F-2H-3H-4H-5H-6H  
 Softer            X            Harder

Satin and Matte finishes are inherently more marable than the gloss varnish.

**Matting Agent:** Amorphous Silica

**Refractive Index:** Reichert Abbe Mark 2 Refractometer at 22 oC:

Gloss- 1.3746

Satin- 1.3798;

Matte- 1.3797

**Removability:** Easily removable with household ammonia (avoid using any suds-ing or scented grades).

**Resin:** Acrylic/Styrene copolymer solution

**Solids:** 23%

**Specular Gloss:** Typical values when applied as a drawdown over a nonabsorbent card. First number indicates varnish applied as supplied and the second number indicates varnish thinned 30%.

	<b>Gloss</b>	<b>Satin</b>	<b>Matte</b>
20 Å°	66, 56	-	-
60 Å°	87, 81	6.1, 6.6	.9, .7
85 Å°	-	-	13, 11.5

**Thinning:** required prior to use. Start with a ratio of 3 parts varnish to 1 part distilled water for brushing; and between 1 and 2 parts varnish per part water for spraying.

**Ultraviolet Protection:** Hindered Amine Light Stabilizer and Ultraviolet Absorber (substituted benzotriazole compound.) The thicker the film of GOLDEN varnish w/ UVLS, the greater the protection.

**Vehicle:** Water.

**Viscosity:** Brookfield RV, range as supplied; 1200-2500 cps.

**Water Permeability:** ASTM D 1653, Test Method B, Condition C; 16 perms. Will not fog or turn cloudy when exposed to high humidity or low temperature.

## **DISCLAIMER**

The above information is based on research and testing done by Golden Artist Colors, Inc., and is provided as a basis for understanding the potential uses of the products mentioned. Due to the numerous variables in methods, materials and conditions of producing art, Golden Artist Colors, Inc. cannot be sure the product will be right for you. Therefore, we urge product users to test each application to ensure all individual project requirements are met. While we believe the above information is accurate, **WE MAKE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**, and we shall in no event be liable for any damages (indirect, consequential, or otherwise) that may occur as a result of a product application.