THEMATIC UNIT Nº 8

VARNISHES.

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8.1. DEFINITION AND ESSENTIAL CHARACTERISTICS.

Varnish is dissolution of one or more resinous substances in a solvent that evaporates or dries on the air with ease, resulting in a layer or film. It is used to protect surfaces. There are natural varnishes, generally derived from the resins and essential oils of plants, and synthetic of modern formulation. Varnishes are applied to wood and other surfaces in order to preserve the action of abrasion, water and atmospheric agents, also has a decorative function, since dyes can be added in order to change its color.

Often the paintings are varnished to get a glossy or matte finish, but that is not the primary function of a varnish for paintings. The primary mission of a varnish is to protect the painting.

There are two types of attacks a good varnish has to address, physical attacks, such as scratches, fingerprints or graffiti attacks with pencils or paints. The atmospheric aggressions, such as fly poop, smoke snuff or cars, dust, etc. All these "attacks" fall on the varnish, which acts as a barrier to prevent such attacks from damaging the work.

The varnish is therefore a filter, and as such, once it is dirty, we replace it with a new one in the market there are many brands and types of varnishes, for its high quality, these varnishes, except Copal varnish, are reversible that is, you can re-dissolve with solvent or oil of turpentine, but this operation we removed varnish left to the specialists, i.e., the restorers.

For an optimal varnish for artistic purposes is very important that:

- Be as transparent as possible.
- Have a good adhesive power above the paint layer.
- Must be able to apply in very thin layers.
- Must be easy handling and application.
- Must protect the paint layer of environmental agents, atmospherics, contaminants, surface dirt and mechanical action.
- Once formed, dry the varnish film on the paint surface should provide a certain degree of elasticity that allows you to adapt to the natural movement of the substrate and paint layer itself.
- Do not appear shocked, pearls, or any other defect in the varnish film.

- Present successful aging.
- When to be used as final varnish should be easily reversible.
- That the components involved in the varnish present, if possible, a low degree of toxicity and hazard in handling.

The technical part has the mission to protect the paintings of action and mechanical damage, the damage caused by pollution and environmental dirt, and humidity changes that are experienced at the place where the work is exposed.

The aesthetic mission is to improve the final appearance of the paint by removing traces of sink marks, the differences in the surface brightness of the paint layer, and enhance the vividness of colors.

8.2. A BRIEF HISTORY.

The varnishes have been used for thousands of years, in one form or another, to protect the wood finish. The Egyptians used it to decorate their graves and the Greeks as protection of wood from their boats against the corrosive power of sea salt (a kind of caulk). However, the coatings were not used as material for furniture finishing up the last five centuries.

Through the years, wood finishes have been found in varnishes, many features not possessed by the shellac, e.g.: its ability to harden as it dries, its ability to acquire a great shine when polished, some waterproofing against water, moisture or grease. Currently there are materials resistant to UV, instant dry, with high abrasion resistance and low maintenance, both for wood floors and covering furniture or surfaces.

The history of varnishes for artistic use is marked by the evolution of methods of solution of the resin with which they have developed the main varnishes. Thus, we find that prior to the onset of distillation techniques, allowing the obtaining of volatile essential oils, the only possible method was to dissolve or melt the resins through the process of cooking over an open fire and high temperature. But the coatings obtained with these methods were generally too dark and slow drying, so that posed difficulties in handling. Another option for the dissolution of some soft resins such as mastic, the sandarac or rosin, was dissolving with distilled alcoholic beverage and liquor. With the improvement brought by the new cold distillation process, begin to prepare the essence varnishes much more transparent and more agile in drying.

8.3. VARNISHES' APPLICATIONS.

The varnishes are used for various purposes in the making of a painting, the most important applications are:

- In primers. It serves as an insulator to control the degree of absorption and color of the rig, are applied as binder, Very lean and lowered for the preparation and application of primers for mixed techniques or direct oil paintings.

- For retouching. They are used as retouching varnish to eliminate sink marks areas and facilitate fresh paint adhesion on dry layers.

- For the preparation of mediums and thinners. The varnishes can be mixed with drying oils, plasticizers, matting agents and dryers in various proportions to make products generically known as mediums, solvents, vehicles, mediums to paint, and even if mistakenly, solvents. This manipulation of the varnishes is to facilitate the application of paint and improve their properties, both optical and drying and preservation. They are a key element in the mixed techniques and the application of oil paint in layers.

- For the preparation of sheens. Coloring the varnish by adding an oil color or otherwise, depending on whether a procedure is oil or water, colored varnishes are obtained which, when applied to the entire surface of the painting, in a very transparent, serve to modify their chromatic appearance.

- As a final varnish. The varnish as the finishing layer of a painting serves two basic functions, the first has a technical character and the second, aesthetic.

8.4. VARNISHING PROCESS.

The first thing we do is clean the dust of the painting, dry with a cloth, leaving no "little threads", and in extreme cases, clean up the table with demineralized water with few drops of "ox gall" (the ox gall, is a medium for watercolors, is sold at fine art stores).

We must varnish with a flat brush or a quality, which does not let the bristles. In that sense we do not recommend using new brushes since some of them lose more hair in the first session. Varnish will applied diluted with 10% of essence in one direction until covering the entire picture, and then give the strokes in the opposite direction, as seen in this image:

The varnish should be applied in two very thin layers, and we never do one pass with thick varnish.

If the painting is old, nineteenth century, for example, it is best to deal a good restorer of paintings.

Very important.

- Should not be varnished boxes during bad weather, as rainy days, wet it is important that the newly varnished painting does not suffer extreme temperature changes.
- We must wait a minimum of 6 to 12 months before varnishing an oil painting, counting the time when the painting is dry to the touch, not when you just finished.
- A thicker paint, the longer we wait, it is very important to be patient, because it depends on the preservation of our work.
- Previously, we explained that the drying of oil requires atmospheric oxygen, since it is the oxygen that makes the oil dry in depth, if varnish before time, the chemical process "oxygen and oil" stops, and can be catastrophic for the painting, but immediately, if over time, there are many who say they varnish early and nothing is wrong, wrong, since the disastrous results need not occur soon, or a few years ... but in the end, evil appears, sometimes even after the artist died, and the family sees it with resignation as the work of his relative deteriorates helpless most of the time.
- Finally say that always use the best quality varnishes, varnishes for paintings have nothing to do with furniture varnishes, and if in a hurry, because of an exhibition for example, and want to varnish a painting, do it only sprayed in a very thin layer and always if the painting is dry to the touch at least two months ago.

8.5. TYPES OF VARNISHES.

The coatings can also be classified according to their utility and function. In that case we can talk about:

Varnishes diluents or mixtures

Is used mixed with the paint to increase adherence to the support thereof, make glazes, increase or decrease the final brightness of the colors, maintaining the balance of the formulations and their properties, their use adequately ensure the quality of work .

Touch-up varnish

Keep in mind that on the layers of dry paint are difficult to implement touch-ups, especially if it is subtle faded, delicate touches or glazes, like not hold on well subsequent applications of paint. In this case it is advisable to cool the dried paint layer, on which we will return to paint, with a touch-up paint to facilitate the implementation of the new retouching and correcting any areas of color sink marks, that way they will adhere to deeper in a more robust way.

Components

Retouch varnish is composed of: a varnish to the essence, prepared with natural resins dissolved in turpentine or synthetic dissolved in *white spirit*, obtained in cold, and a drying oil, mainly linseed, thickened in the sun.

Retouch varnish or intermediate, can be prepared with two volumes of turpentine, a volume of dammar varnish or mastic and a half volume of linseed oil or stand sun-thickened oil.

The other possibility would be to prepare the retouching varnish with ketonic resin dissolved in *white spirit* and linseed oil thickened in the sun, keeping the same proportions used in the recipe above.

Preparation and implementation

1. In a wide mouth glass jar, which closes tightly, pour a volume of the varnish chosen, medium volume of linseed sun-thickened oil or stand oil and the two volumes of oil of turpentine or *white spirit.*
2. Cover the jar tightly and shake vigorously to mix the components well.

3. Let it stand in the sun, it should be recommended to leave it for a day, and it is ready for use.

4. Whether you are applying for the cooling of large surfaces, as if you are used to correct areas of small or medium sink marks or minor tweaks, we proceed similarly. The varnish is applied in layers as thin as possible, removing excess by rubbing with the heel of the hand or with a silk cloth, or other lint-free tissue.

5. After removing the sink marks, or cooled to the desired surface, you can proceed to continue painting on the surface, the better while the application of the varnish is still slightly damp, so we will make these applications work and grab better over the treated paint.

Dutch Varnish

Dark reddish brown, provides elasticity, improves drying, gives fluidity and sparkle to the film of oils, preventing cracked. Diluted with turpentine, oil and oil odorless, can be used as a final varnish. Because of its slightly yellowish tint to oxidize, is ideal as an imitator of aging patina.

Final Varnishes

Before applying a final varnish to a work we must ensure that it is completely dry. It is not advisable to varnish an oil painting than a year to finish.

Varnishes fixing

It can be matte or glossy. It is used as final auction of paintings, paintings and other artistic works in oils have been used acrylic, chalk, charcoal, pastel, tempera, etc.. This varnish will preserve these paintings and is available in matte or glossy version.

Crackled Varnish.

The crackle is one of the techniques used in decorative arts to give an antique look to different objects.

The cracks that often occur in elements such as oil paintings, ceramics, etc., through the passage of time and are produced by different drying rates of the components; they are reproduced in a few hours using special varnishes and different types. The technical basis of the different rates of drying of the paint, we can distinguish basically two ways to get a crackle on a surface:

Using different types of paint, with the help of another element that can be vinyl glue or egg white.

Using cracklier varnishes, we can get better effects than the simple mixing paints or with glue. The way of application is simpler and the effects often occur more rapidly. Today there are many ready products in specialized stores, only to follow your instructions or the advice of shop staff, it is easy to get the crackle effect. These products are often sensitive to heat and air currents, effect, that is also used to accentuate the cracks. On the other hand, there are two types of crackle, the most popular one single component and a somewhat less widespread than using two components.

Crackle Varnish of a component. - apply generally between two contrasting colors, for example:

1. Base color, acrylic paint (will be the color of the cracks) color to choose / dry.
2. Apply crackle varnish overlay trying not material / mordant.
3. Superior color, acrylic paint, color by choice, let dry and will appear the crackle.

Crackle Varnish of two components. - This cracklier is used mostly to crackle paints, prints, ceramics, glass, metal, etc..

1. Apply two coats of the first component allowing to dry between each.
2. The second component is applied and when dries forms cracks.

But the varnish can also be grouped according to the resin or material that composes, and the solvent used. Until the advent of synthetic resins, the resins most commonly used were those of natural origin, especially those of dammar and mastic (also called mastic gum or gum mastic). At present, these resins have been largely displaced by new synthetic resins, mainly due to ketones, alkyd and polyurethane.

Following their component resins are:

VARNISH DAMMAR

Resinous varnish consisting of a solution of natural Dammar rubber diluted in essences. Dries quickly and provides a transparent and brilliant film. Apply using soft brushes, flat, wide quality. It can be diluted with turpentine, oil or odorless oil to reduce the brightness of its dry film.

MEGILP

Soft resins, mastic and dammar, they present as varnishes, diluents and in addition to the mashed oil colors (colors resinous) invaluable services. They act against the wrinkled and film formation of oils and against further contraction and destruction, for the reason that dry from the inside, that is, throughout the mass by evaporation of solvent, in contrast of fatty oils, which set the dry air oxygen from the surface. These materials are less exposed than fatty oils to oxidation and provide excellent protection against gases, humidity, and even attacked by these agents can easily regenerate. Dissolve in ether oils and in hot in the fatty oils.

COPAL VARNISH

Copal is a generic name for very different resins. Many copals are harder than rock salt, while others are softer than the dammar. The fossil copal insoluble in alcohol and do not dissolve directly in fatty oils. The soft copal is soluble in alcohol.

ROSIN VARNISH

Rosin or ream for violin is the solid residue from the production of turpentine, one ream of low quality, highly acidic and chipsy, light yellow or dark brown. It blacks strongly under yellow light. It is soluble in turpentine, alcohol and benzene, acetone and lye (sodium hydroxide solutions). The counterfeit varnish rosin resin cracks easily, remains sticky and then emerges as chips. Shellac frequently counterfeited with Rosin.

POLYURETHANE VARNISH

They are popular in the treatment of wooden floors, wooden or parquet. This material is waterproof, resistant to abrasion, and longevity.

PYROXYLIN VARNISH:

This type of varnish is created based on nitrocellulose and has been the most used in the furniture industry, commercial can be found with this name Duco is divided according to the process and applying at the beginning commonly called wood sealer and then to give the different terms apply; lacquer.

WATER-BASED VARNISH:

Traditionally it was Arabic Gum Varnishes, Casein varnishes and egg varnishes. Currently because of environmental matters, we find synthetic

alkyd resin varnishes are also water-based. Usually occur in one-component or two-component version (A & B, resin and catalyst), with exposure and use of low toxicity. Dried by evaporation and moisture and have good abrasion resistance and water. Not yellow or darken and provide better UV resistance than standard varnishes.

ALCOHOL VARNISH:

Varnishes are usually made of shellac, Dammar and rosin that have finally been dissolved in alcohol. The lacquer is mainly used for final treatment of wood surfaces of furniture and musical instruments. It is one of the oldest types of finish that dries quickly because, protects well and has a long duration. With the development and preparation of varnishes and lacquers industrial synthesis, shellac has lost some popularity he enjoyed with the old, but still holds an important place not only in the field of wood finishing but also in other industries.

8.6. PREPARATION OF VARNISH.

Here we focus on the preparation of varnishes based on natural resins copal, dammar and mastic. In these cases we can make the varnish warm or cold, being more transparent the one made cold. The processes are three, two cold and one warm.

Cold processing

Selected copal varnish. After selected the copal for its transparency and clean, grind and sift the resin, adding it gradually to three parts of turpentine, and when it is fully embedded, we remove with an instrument all content, shaking the pan periodically; after ten or fifteen days the varnish is ready for use (previously drained). Its application is by brush or spray.

Purified resin varnish. It is the most transparent varnish can be obtained from natural resins. This is made previously purifying resin, immersing in anhydrous alcohol for several days (5-10 days) alcohol at this time drag more turbid impurities that are more soluble to alcohol. In the bowl appear whitish balls which we extract and let it air dry, but not direct sun because it darken copal, once they've been dried and evaporated alcohol, will appear somewhat soft and even malleable and have the property of being highly soluble in turpentine, so immersed in it for 24 hours, it dissolves being the varnish prepared.

The proportion to use purified resin and turpentine, varnish is equal to the previous (third), resulting in a very transparent varnish and extraordinary flexibility. Application to the bases is equal to the previous one.

Hot Processing

Common varnish. Operations on the resin and its proportions are equal to the cold method, but when shaking the contents for dilution container will be placed in a double boiler, stirring constantly with a stick until the total dilution of the resin. This varnish, a resin portion and three portions turpentine, is commonly used in paint and in the case of use as a regulator of absorption can be applied directly or diluted at will. The issue can be performed as in the previous regulators to brush or spray.

8.7. FINISHES WITH VARNISHES.

VARNISH GLOSS FINISH: 90% of light refraction.

It is highly purified, therefore achieves a glossy finish on the work. It has great grip and durability. Of excellent transparency, waterproof and provides protection to any material and painted. It is especial for decoration and protection of all types of wood constructions or stained natural wood interior and exterior such as windows, cabinets, furniture, etc.

SEMI-GLOSS OR SATIN FINISH VARNISH: 40% of light refraction.

It's brighter than the matte, so it resists stains much more. It is ideal for varnishing all types of wood surfaces indoors and outdoors covered, such as furniture, doors, cabinets, etc..

VARNISH MATT FINISH: 10% of light refraction.

It has the same characteristics of gloss varnish with matte finish unlike. It is fast drying and can be applied with a brush or sponge.

8.8. ALTERATION OF VARNISHES.

Alterations of the varnish, although not usually dangerous to the integrity of the whole of the painting, are extremely annoying. These alterations range from the common yellow and consequent darkening and discoloration of the picture, until bleaches that eventually partially hide painting. There is no perfect varnish as a enduring and eternal protective layer and degree of alteration depends directly on the materials it is made. In that sense the fat components of the varnish end up yellowing and darkening due to chemical processes associated with oxidation, the action of light or heat sources. On

the other resin comprising varnishes tends to become insoluble and yellows in contact with the environment. Also because of their progressive loss of flexibility, there is a physical process directly visible as crackle, cracked, loss of gloss, wrinkles, etc.

As to the hazards associated with the progressive lack of flexibility both as fatty varnish and resin varnishes, it is important to note that the thicker the layer of lacquer will be more rigid, with the consequent danger of increasing the crackling possibilities. If on the contrary, the varnish layer is excessively thin is more likely to remain flexible but not finish in a manner appropriate to fulfill its protective function, besides being more difficult to remove in the event of a future restoration.

Another issue, to consider when applying the varnish, is that if abused turpentine, at first we get an elastic varnish as a first step, but with the slow evaporation of the solvent has just resulted in a fragile veneer. If instead you use a varnish base excessively concentrated, due to their lack of flexibility, may cause chipping of the paint flakes entrained on which it is adhered.

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