



Shellac

Traditional Finishes Series

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Introduction

Shellac has been a popular finish for timber, and as a dye literally for thousands of years. Historical records have dated its use as early as 3,000 years ago in Asia and India. The form of shellac used by woodworkers as a finish is made by dissolving flakes of shellac in a denatured alcohol solvent.

The traditional origin of the flakes are the secretions of the female lac insect, left on the banyan tree (and some other selected varieties of tree) as part of the reproduction process, found in the forests of India, Asia and Thailand. Once these secretions are removed from the tree, it is called "seedlac". The harvesting process leaves many impurities in the seedlac, and therefore it must be processed which after processing results in a dry flaky substance.

These shellac flakes take on a range of colours from orange to nearly transparent 'white' shellac (produced by bleaching orange shellac). Shellac is also available in waxed (natural) and de-waxed formulations.

Furniture makers and other woodworking craftsmen often used shellac in applications including French polishing, for food safe uses, as a wood sealant and as a wood primer. For hundreds of years it was regarded for its water resistance properties, ease and flexibility of use and for the way it enhances the natural appearance of a broad variety of timbers.

Types of Shellac

Shellac Flakes

Shellac is primarily sold as flakes, and the woodworker must prepare the quantity required by dissolving the shellac flakes in alcohol. The color of a package of dry shellac indicates the degree of refinement the shellac flakes have undergone. Shellac, in its raw state, is a dark orange-brown color, which becomes lighter in the process of refinement.

Button shellac (button-lac), the least refined, is so named because it is in the form of dark brown buttons. It is suitable for use only when a very dark finish is desired.

Orange shellac, a more refined grade, is also recommended for darker finishes, but it allows more of the underlying wood to show through than does the button shellac.

Blonde shellac is a pale amber color. It imparts little change to the color of the finish.

White shellac has had all its natural pigment bleached out, and is quite clear. It is recommended for a very light-coloured finish.

These variations are not limited to the above traditional categories as many manufacturers also make their own recipes and styles.

Each of these basic types are also available in **de-waxed form**, containing less than their natural 2% to 4% wax content.

Shellac Liquid (pre-prepared) - sometimes called "**French Polish**" or prepared shellac, this is essentially shellac flakes pre-dissolved in alcohol (sometimes with an oil or other additive) to eliminate the mixing step. These products are beneficial, however they have a limited shelf life.



How To Use Shellac

As with any traditional product that has been used for many years, there will be many different opinions and preferences on how it should be used. After some experimentation, it is likely you too will develop your own preferences based on the types of projects you undertake.

Special Precautions

Care should be taken with the handling and disposal of the rags used to apply shellac. The shellac itself is not a problem, however the alcohol used to dissolve the shellac is extremely flammable, and the even the vapors produced by the drying and evaporating shellac are flammable and combustible. Allow rags to thoroughly dry on a non-flammable surface (such as a concrete block), or washed, or soaked with water before disposing of them. Keep out of reach of children as the alcohol used is usually denatured alcohol, (making it somewhat unpleasant to drink), but some children are apt to investigate...

Wear a dust mask when sanding between coats. Fine dust is a woodworker's hidden health hazard.

Preparation

Shellac has two primary uses in woodworking. First it can be applied as a sealer under some other type of finish, or it can be used as the final finish on the project. The only real difference is the number of coats that are applied, since the sealer coat does not need to be thick (other products will offer physical protection) while the finish coat needs to be thick enough to protect the wood from physical abuse and the elements. Ensure the surface is adequately prepared by sanding using progressively finer sandpaper until you reach 300 grit sandpaper. This will leave the surface smooth and there should be no visible scratch marks that remain. Of course, if the shellac is being applied over some other finish, such as oil, perform the sanding steps before applying the oil.



Preparing the Cut

Shellac flakes must first be dissolved with alcohol ("cut" with alcohol). The dissolved shellac is traditionally referred to by its concentration. Therefore, a 1 pound (lb) cut of shellac has 1 pound of shellac flakes dissolved in 1 gallon of alcohol. a 2 pound cut of shellac has 2 pounds of shellac flakes dissolved in 1 gallon of alcohol, and so on.

Cut	lb/gal	grams/liter	Uses
1-lb.	1	120	Pre-stain sealing, French Polish finishing
2-lb.	2	240	Pre-finish sealing, general wood finishing
3-lb.	3	360	Internal floor finishing, sealing knots & sap streaks
4-lb.	4	480	Sealing tough knots & sap streaks, stains

Note: The 4-lb cut is generally used by professionals and is considered too difficult to work with by most hobbyists.

Beginners and those unsure of the outcome are strongly advised to use a 2-lb or smaller cut. Some will even prefer to apply two coats of a 1 and a 1/2-lb cut, since the 2-lb cut asks for less hesitation and is not as easy to apply on highly figured work pieces. But if your work piece has large clear surfaces, the 2-lb or 2 1/2-lb cut may save you a lot of time since you won't need to mess with many corners.

To produce a cut, you need a scale to weigh your shellac, a measuring cup (of whatever size you find appropriate), and a glass jar with an air tight fitting lid that is large enough to hold the quantity of shellac you intend to make. Since the measuring cup will only be used for denatured alcohol, it is safe to use a kitchen measuring cup and simply wash it afterwards.

Metal cans should not be used as the shellac will react with the metal, darkening the shellac.

You will often require less than a gallon to finish a project. One liter/quart of a 1 and a 1/2 cut is enough to apply three or more coats to a pair of bedside tables and drawers or the like. Remember to only make as much as you think you will use. It is quick and easy to make more shellac but is expensive and wasteful to make too much and throw it away.

After mixing the shellac flakes, it takes up to 24 hours to dissolve. Seal the container and let it sit overnight, occasionally mixing/shaking the jar. Do not be concerned about being overly accurate. The difference between a 1-lb cut and a 1 and a 1/2-lb cut is not overly significant, and it is easy to correct by just adding some more alcohol if desired. Once you start applying the shellac and seeing how it dries, you can always adjust your shellac for the next coats. After the shellac is fully dissolved, it should be strained through a fine-mesh cheesecloth before use to remove any impurities. Shellac is made from the secretions of the lac insect and a few bits of insect carcass are often left in the shellac flakes.

Shelf Life of Shellac

Shellac that has been cut with alcohol and stored for periods of time undergoes a chemical change making the drying period when applied to the timber longer and longer to dry. If the shellac is applied once it has started to undergo this process, the finish that it produces will be softer and will be more prone to water damage and scratches than freshly mixed shellac.

Exposing the pre-mixed shellac to heat will also accelerate this deterioration process, so keep the prepared shellac in a cool (less than 24 °C), dark location, in an air tight sealed container. Since shellac is dissolved in alcohol, there is no worry about extreme cold weather. Nevertheless, the best policy is to try to avoid storing cut shellac for any lengthy period of time, if possible.



Applying Shellac

Shellac can be successfully applied using a rag, brush, or sprayer. If you plan on using a brush, it is recommended you keep to a 2-lb or less cut of shellac, or keep a close eye out for brush marks drying into your project that you will have to sand out if you want a smooth finish.

Before shellac is applied, it should be shaken or stirred thoroughly and allowed to stand for a few hours. If using a brush, shellac should be applied using long strokes in the direction of the grain. A good-quality brush with a chisel tip delivers great results. Its bristles should be dipped about 3/4 of the way into the shellac and gently cleared of excess shellac against the rim of the container. This gives a reasonably full brush for full strokes without incorporating any air in the shellac. Place a lid on the jar to reduce the evaporation in the jar.

If using a rag, use a lint-free cloth and fold it in such a way that you have multiple layers of cloth (allowing the cloth to hold more shellac), but make sure the bottom layer that you run across the work piece is smooth and not creased or wrinkled, as it may leave marks on your project.

Shellac can also be sprayed in controlled environments. It is recommended you follow the manufacturers recommendations for the spray equipment on its application. It is recommended that the cut for spray applications not exceed the 2-lb cut.

Shellac should be sanded between coats and each coat should be allowed to dry thoroughly. If the shellac is dry, sanding will produce a fine powder on the surface. If the shellac is not dry, it will be somewhat tacky to sand and the paper will clog. An alternative to using paper is steel wool. It is recommended that the wool be 000 or 0000. This will give you adequate sanding without all the fussing with delicately folding sandpaper, particularly in carved areas.

After sanding, the piece should be wiped thoroughly with a tack cloth and recoated. Depending upon temperature and humidity conditions, you should allow between two and four hours for each coat to dry. Some craftsmen prefer to do their finish sanding of the raw wood after first giving it a coat of shellac, since this stiffens the wood fibers and allows any rough portions to be fully sanded off. Projects should receive at least two coats, and thinner cuts of shellac will require more coats to build up the same level of protection.

After the desired number of coats have been applied, the finish can be rubbed with 0000 steel wool or FFF pumice with paraffin oil. Rubbing should always be done with the grain. If it is desired, a coat of wax can be applied 24 hours after the final rubbing and the surface buffed to a finish.

Repairs and Maintenance

Repairs for shellac surfaces couldn't be simpler. Shellac has the wonderful benefit that each layer of shellac that you apply softens the previous layer, and the two layers essentially bond together.

If a wax has been used on top of the shellac, make sure to remove the wax first. Simply prepare some shellac (don't forget that shellac has a limited shelf life), then brush or wipe on one or more coats using the techniques described earlier. If you are simply filling in a scratch, refinishing the entire surface is not necessary, and you can use a fine brush to target your application of the shellac. Just be careful that your sanding step does not cut through the surrounding shellac. In these cases, a lighter cut usually produces a smoother finish without the need for sanding since the shellac has a better chance to self-level before drying. The only downside to this is that you must use more coats to develop the same level of protection, but for some that is a reasonable tradeoff.

Antique Furniture

An important tip from the Experts— If you know your piece of furniture is truly an antique (usually defined as more than 100 years of age) and still has its original shellac finish, think carefully before refinishing. The value of an antique increases tremendously if it still has its original finish. If the finish is badly worn or damaged bring it to a professional furniture refinisher. In these cases, particularly when value is an important consideration, preservation is better than restoration.

Removal of Old Finishes

Old finishes can be removed by using ethyl alcohol (or any other appropriate solvent) and carefully rubbing the surface with either a cloth or fine grade steel wool depending on the condition of the old finish. The solvent will soften the shellac, and you need to wipe away the softened shellac. If the shellac was applied on top of an oiled wood (such as linseed or tung), the shellac should be possible to remove completely. If the shellac was applied directly on fresh wood, the shellac would have been absorbed into the fibre of the wood, and may not be removed completely without sanding. This is usually considered a benefit of shellac, but in this case it makes removal a little more difficult.



Common Questions

Question: Does a shellac finish turn white when water touches it?

Answer: Fresh shellac that has been correctly applied is remarkably water-resistant. In most cases, will stay clear when exposed to water or moisture, making it a great finish for most interior surfaces, including woodwork, trim, doors, cabinets, paneling, floors and furniture.

Question: Is shellac brittle and easily scratched?

Answer: Shellac is a durable finish that is much less brittle than lacquer finishes and does not scratch as easily. Unlike polyurethane, a damaged shellac finish can be easily touched up or renewed by applying another coat.

Question: Is shellac is incompatible with other finishes?

Answer: Shellac has great bonding properties when correctly applied over almost any other type of finish. When used as a sealer under certain polyurethane finishes, it may not be compatible because it contains a small amount of natural wax. To seal wood before applying polyurethane a wax free sealant will be required.

Question: Does Shellac turns a dark colour as it ages?

Answer: Shellac is UV-resistant and does not yellow or darken with age. The dark shellac that may be seen on older pieces of furniture is often a less-refined version of shellac that either was naturally dark due to the cut used or was tinted when dark wood colors were preferred in the early 20-th century.

Question: Is shellac is an old-fashioned, outdated finish or does it have modern applications?

Answer: Shellac still has many features and benefits that are applicable to modern applications.





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