

# Refinishing Rod Blanks

by Ralph O'Quinn

*In this month's techniques column, an epoxy formulator details the "how" and "why" behind good looking and durable refinishing jobs.*

**T**here are various methods for refinishing rod blanks. In my work as an epoxy finish/adhesive formulator, I have discovered a better and safer method than what is commonly used by many rod builders.

People have been trying to refinish rod blanks with the same epoxy resin marketed for thread finishes almost as long as thread finish epoxy has been on the market. I saw my first such attempt by a would-be rod maker about 25 years ago. It was one hell of a mess! In the ensuing 25 years I have seen many hundreds more, and they all have one thing in common; they too are one hell of a mess. In my rod repair business it seems that I often have a rod that some guy tried to refinish with a thread finish epoxy. Finally in disgust he gets the rod to me for clean up and refinish. Then he has to pay me to do what he could have, and should have done in the first place.

The epoxies sold for guide wrap thread finishing are really casting resins. They are not coatings in the technical sense of the word, and will not perform like a coating. A coating is what you need to apply when refinishing a rod. Coatings or paints all have one thing in common; they contain some sort of a thinning agent known as a solvent. The purpose of the solvent is to give some flow and make the coating wet the surface to which it is applied. Wetting is very important to the performance of any coating. If it doesn't wet, it doesn't stick. Thread finish epoxies simply do not wet properly and therefore they simply do not stick to the blank properly. Add a solvent, and this non-wetting characteristic will be improved somewhat, depending upon what solvent you add, and how much. On every rod that has come into my hands after some guy tried to refinish the blank with a thread finish epoxy, I was able to remove most of the crud with my thumbnail. Is this the kind of coating that you want on your rod?

Previous articles have suggested that you "dip your finger into standard wrap epoxy and rub it onto the blank." Before you do this it would be wise to

take a look at the warning on the bottle of standard wrap epoxy that you are using. It says something about eye and skin irritation. It warns you to wash with copious amounts of soap and water, in case of eye or skin contact. Be sure and wipe your eye with the same finger that you dip into the resin mix! (Just kidding, DON'T DO IT!!!) There is a good reason for warning you to avoid contact with the epoxies and hardeners. There are some people out there who are highly allergic to the touch, even the smell of resins and amines (epoxy hardeners). Those who are allergic, are usually aware of their condition, but some are not so aware of it, and dipping their finger in epoxy is a rather rude way of finding out.

If you are working with a graphite rod, please be advised that the rod is held together by a heat curing epoxy. After the blank is cured and sanded, it is then coated with a coating that is intended to protect the epoxy, and also give it some shine and allure so it will sell. This protective coating is never an epoxy, and should never, ever be removed from the rod. Never sand down to the bare graphite if it can be avoided. When refinishing an older graphite rod, one that has seen much service, this cannot always be avoided. You are bound to expose the graphite in some areas, but keep those areas to a minimum. It is not true that these areas can merely be re-epoxied, as they already consist of a much better epoxy than any which you can possibly apply. However the very fact that you exposed graphite fibers has in itself damaged the rod. Do not under any circumstances, sand these exposed areas. Do not under any circumstances wipe these exposed areas with acetone. Acetone will wash away more of the epoxy resin that is holding the graphite fibers together, further damaging the rod. Never wipe a sanded rod blank with any solvent other than one of the alcohols, or soap and water. When working with graphite keep foremost in your mind that this rod is composed of thousands of fibers, all of which run parallel along the rod from butt to tip. These fibers are carbon and as fine as the finest hair



and they are held together with a heat curing epoxy resin, which is a far superior structural system than any room curing epoxy that you are able to replace it with. Any time that I sand or otherwise remove or damage one of these fibers, I have essentially damaged the rod accordingly. Acetone will leach out the epoxy resin binder, and leave the rod badly damaged wherever it comes into contact with the graphite.

Fiberglass rods are another story. There is no epoxy involved with fiberglass rods. They are made from polyester resin impregnated glass cloth, sanded and coated with a protective coating like the graphite. Some of them are not sanded before applying the protective coating. These are usually known as rough outs. A fiberglass rod can stand considerably more surface abuse and mistreatment than the graphite counterpart. Since the glass fibers are a woven cloth, local exposure of the fibers does not impose the same degree of damage to the overall rod as it does with graphite. However, Acetone will leach out the polyester resins and ruin the rod if exposed. Avoid acetone on any rod anywhere at any time - just to be safe. Actually, acetone is really not hurting a rod with its original factory applied protective coating intact. What Acetone is hurting is the bare epoxy resin in graphite rods, and the bare polyester resin in fiberglass rods which are holding the rod together underneath the outer protective coating.

So just how do I refinish a rod blank? Before you even consider the refinishing, you must take care of the preparation. Preparing an old rod for refinishing does not come easy. Certainly not as easy as just sanding it and slapping on some epoxy resin. Most rods that really need a refinishing operation are in the low to medium price range, and did not have a top grade protective coating applied on the blank at the factory. High grade blanks, those in the \$150 and up range, seldom ever need a refinish job, because the coating applied at the factory was top notch and will stand up to the elements much better than their cheaper associates. Of course, there are exceptions to this. There are good blanks manufactured by good companies who simply do not understand coating technology and put poor coatings on good blanks. But they are in the minority. Most coatings are a derivative of a Urethane or an Acrylic, usually a Urethane compound, although Alkyd Ureas are still used extensively. Each manufacturer has his own favorite, and most of them guard their secret zealously. They are universally applied by dipping the blank into a tank of finish. Usually, depending upon

the coating technology, the blank is wiped by withdrawing it through foam or soft rubber which wipes off the excess resin. This leaves a very thin coating, less than a mil (1 mil equals one/one-thousandths of an inch. ie: .001 in.) Some coatings are then air dried and some are baked in an oven. It is those that are air dried that more likely to attract your attention for refinishing.

Probably what attracted your attention first was that the original coating is starting to peel. Repeated flexor and exposure to sun has taken its toll. So you figure on prettying up the rod by adding a new paint job. Remember now, you want to apply a new coating to the blank. You do not want to apply new resin to the structure of the rod. If you take 400 grit sandpaper and judiciously start sanding away, you will be removing most, if not all, of the resin that covers the outer fibers. And the outer fibers are the main structure of any rod. First try your thumb nail on the loose particles. You will be surprised how much you can remove with this handy little tool. Also this will show you the difference between the coating and the resin. Keep in mind that you want to remove the coating and preserve as much of the resin as possible. I have a set of soft steel scalpels on which I rounded the edges with 600 grit paper, so that they are quite dull and will not cut into anything, including my fingers. I use them to gently scrape finishes without bothering the underlying coating. Sometimes it is best to use something softer. Try a common plastic picnic knife; they work surprisingly well. Another good tool is a piece of split bamboo. It has sharp edges and will scrape off finishes, but is not hard enough to mar the underlying resin. When all of the loose finish is removed, abrade the entire rod surface with Scotchbrite type F. That is the gray color about the same grit as 0000 steel wool. This will clean and remove surface shine from the resin under the removed coating, but it will not remove the resin itself, nor will it dig into the fibers such as sandpaper will do. Don't worry about handling it with your bare hands. Surfaces that are this porous are not going to be contaminated by your hands, providing that they are reasonably clean. Take an alcohol dampened (not saturated) rag and wipe the entire blank. You are doing this to remove loose pieces of removed finish, and abraded resin, not to clean it from greases or contaminations. Either Isopropyl (rubbing alcohol) or Denatured alcohol will do the job.

If this is the first time that you have tried to refinish a rod, then you probably better leave the guides



on, even though you can only get a half-decent job this way. The only way to get a really first class job is to remove the guides and have the blank completely free and clear of all impediments. However removing a guide and the resultant clean up in the guide area is another lengthy article in itself; too lengthy to go into at this point. Working with the guides on is a real handicap. You are constantly chipping away at the windings; there is a real problem at the edge of each winding where it is very difficult to properly remove the finish without cutting into them. Then what do you do with that area underneath each guide, between the windings? These problems must be resolved on an individual basis. If you do very many refinish jobs, you will soon learn that complete removal of the guides is the only to go. It is easy to reapply the guides, because you have a nice new blank to work on; it is another story to remove them properly.

Now for putting something back on. The Urethanes are your best bet, but not just any urethane. Do not use the Varathanes, or any oil modified urethane. You are better off just using a good spar varnish. Get a good two-part urethane, and follow the instructions on the can. It will give you a life-long coating. I always use Permagloss, because it does the job so magnificently and I have plenty of it! It is a moisture curing urethane, tough as nails, and will stay water white forever. Another very good coating to try if you have the wherewithal and intend to do more than one blank is a good automotive clear coat. Not the kind that you buy in an aerosol can, but the kind that comes in two or three parts and you have to mix before using. They are very expensive, but are an excellent coating. I have never used anything sold in an aerosol can that was worth a damn. Some of the automotive epoxy coatings are probably worth a try, (again, not the ones that come in an aerosol can) but I have never used them so I can't speak from experience. The only epoxy that I am aware of that is worth trying is Clemens Crystal Coat. Crystal Coat is sold as a thread coating but contains a solvent, like all good coatings, and does a fairly good job as a rod coating. It doesn't tend to turn brown, has pretty fair adhesion, and gives the rod a nice luster if you use several coats. I still prefer the urethanes, but if you are set on an epoxy for your coating, then give Crystal Coat a try. But whatever you decide to use for a coating, please do not use any of the standard wrap epoxies that are intended to coat your threads. 