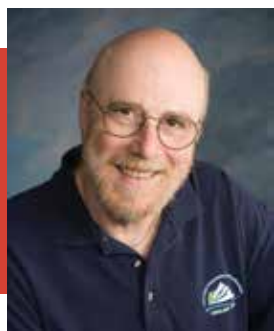


# BULLETPROOF

## Pen Finishes



### INVITED SYMPOSIUM DEMONSTRATOR

Kurt Hertzog will be featured as one of the invited demonstrators at AAW's 2017 International Symposium in Kansas City, Missouri, where he will cover various penturning topics. For more, visit [woodturner.org](http://woodturner.org).

### Kurt Hertzog

When you think of woodturnings, there are few that live a life as difficult as a pen's life. Artistic forms are viewed and rarely handled, and functional turnings are expected to take on a bit of a weathered look. Pens fall into both categories. The artistic pen sitting in a stand on a desk for a few signatures a day has a cushy life. The workhorse pens wind up in the bottom of a purse, in the glove box, bounced around in a drawer, or just plain manhandled. This doesn't include the abuse of opening boxes, poking into things, or generally using the pen as a tool in addition to writing.

Waxes and rub-on finishes will certainly add a high-gloss, punch-up-the-figure finish, but they don't protect the pen from typical abuse over time. Following are three finishes that are easily applied and can provide exceptional protection, in addition to making your pen look great. For the most durable finishes, I recommend cyanoacrylate (CA) adhesive, lacquer, or epoxy.

### Safety

While all three of these materials may be familiar, don't become complacent about safety. Adequate ventilation is

a must, as well as eye/face protection and gloves as needed. Both CA and epoxy will "exotherm," or give off heat, as they cure. Your applicator towels or brushes need to be placed in an area where the heat won't present a fire hazard while they are still curing. Once the towels or brushes have cured and are cold, they are safe to discard. When spraying lacquer, use plenty of ventilation and, even better, wear the correct carbon-filter mask. They are readily available and reasonably priced.

### CA adhesive Considerations

You may think of CA glue as Krazy Glue®—it has fast curing and wonderful wicking capabilities. CA adhesive, in liquid form, is really a plastic that hasn't hardened yet. Using it as a finish over your pen can literally put a plastic shell over the top to create an extremely protective finish. There are many methods touted as the one to use when creating a CA finish. Some spell out mixing in boiled linseed oil, using a specific brand

of paper towel, buying a special brand or viscosity of CA adhesive, or other guidelines. Here is a simple application method that works well for me.

Use thin viscosity CA as a finish. As far as brand, I have tried many of them and all will work. The technique matters more than the brand. That said, I recommend when you get this technique down, continue with the same products—no sense entering another variable into the process. Pick your favorite, learn the technique, and for ease of application, keep the variables to a minimum. You'll have enough variables with the variety of materials you'll be finishing.

On the topic of materials, there are some I won't put a CA finish on. Plastics themselves provide a great surface to punch up and be protective, so there is no need to put a finish over them. Blackwood and similar dense woods are tough and resilient. They will take a good shine without any finish. Oily woods can be finished with CA, but you need to remove the surface oils before application. This can be done with acetone, and the CA finish should be applied before more oils can weep to the surface.

With the turned pen sanded and still mounted on the lathe, use a paper towel wetted with denatured alcohol to wipe all of the dust out of the wood's pores.

If you've cleaned the pen with a liquid, wait until it dries before you apply CA.

### Application

The actual CA application is simple. Fold a half-sheet of clean paper towel three times until it is a small, handheld applicator. On one of the corners, apply sufficient CA to wet it well but not have any liquid puddle (*Photo 1*). With the small amount of adhesive and the multiple folds of the towel, you shouldn't have your fingers come in contact with the CA. You can certainly wear gloves just in case. Since CA dries very quickly, a wise move is to have a small container of acetone open and within reach. Acetone will dissolve CA, should you accidentally glue your fingers to each other or to something else.

With the lathe off, pick a point on the mandrel as a reference and wipe the CA along the length of the pen (axially) as you rotate the lathe spindle by hand (*Photo 2*). Go around one complete rotation, until your wetted edge meets the spot where you began. If wiped on axially and very sparingly, there is no adhesive wicking down into the bushings, and the CA is already cured without the need for accelerator. If you are having difficulty with the CA adhering to your pen bushings, you can mount the pen blank using non-stick, plastic bushings (*Photo 3*).

Pick a fresh corner of the paper towel and repeat the application.

After you have applied four coats using the four corners of the paper towel applicator, put the paper towel in a safe location to cool. Get another paper towel and repeat. How many coats? Because you are putting on the CA in extremely thin coats, you'll need to build it up. You can apply twelve coats in about five minutes. You'll know the number of coats by counting the paper towel applicators you've used. If the CA doesn't set up immediately, you can mist on accelerator sparingly with the lathe running slowly. Build your finish until you get the depth you want. From here, go to the "Finishing the finish" steps below.

### Epoxy

#### Considerations

Epoxy is another good choice for a durable pen finish. Clean your turned and sanded pen parts, as described in the CA adhesive section. You'll have a choice of two different epoxy types. One is the basic two-part, five-minute epoxy available at home improvement stores. Buy in a store with good turnover; epoxy will keep quite well, but after a while, the resin will thicken, making dispensing, mixing, and application more difficult. Epoxies, such as those made by West System® and System Three®, are also good ▶

## CA adhesive



1 Wet a corner of a folded paper towel, without puddling, to prepare for the CA application. Rotating the work by hand, use the wetted towel to "paint" one complete coat on axially, end to end, around once.



3 If the CA adheres to the pen turning bushings, you might try universal, non-stick, plastic bushings instead.

## Epoxy



Epoxy finishes are equally easy to apply. Mix the resin and hardener thoroughly and wipe on axially while slowly rotating the lathe spindle by hand. It may be necessary to mix additional small batches of epoxy and repeat the process until you are happy with the build.

## Lacquer



Mist on the lacquer while you rotate the pen part, held in place with tape on a skewer. If you apply the lacquer lightly enough, you can shoot the next coat in minutes.

choices and are considered to be more “professional.” These are mixed in different ratios than the more readily available variety. They are not available in small quantities but are certainly worth having in the shop, not only for pen finishing, but also for structural fastening. You can buy them from woodturning retailers or marine centers.

### **Application**

Whichever epoxy you choose, mix it up per the manufacturer’s instructions. Spread the epoxy with a folded-up paper towel (Photo 4), applying it over the entire pen surface; then immediately wipe most

of it off with a clean paper towel. At this point, you have two options. You can apply, wipe off, let the epoxy cure, then scuff the surface with a piece of abrasive to provide some tooth before applying the next coat. Repeat until you are content with the build, or layers of finish.

The other option is to continue applying coats of epoxy while it is still wet. As long as the epoxy remains wet, you can put coats right over the top. Because you are applying and then wiping off as much as you can, you are putting on very thin coats, building with each application. A trick you can use is to blow warm air on the wet

epoxy. Use a heat gun set on low and keep it moving. You’ll get the epoxy flowing into every nook and cranny. Once you’ve built your desired thickness, let the epoxy cure for at least twenty-four hours. After the final coat has cured, go to the “Finishing the finish” steps below.

### **Lacquer Considerations**

Lacquer is another durable finish. I use it on many of my larger turnings, but it certainly works well on pens, too. For spraying lacquer on pens or other small objects, you don’t need

## Finish the finish



(6) After applying your finish of choice and allowing it to cure, sand through the grits with Micro-Mesh™ abrasive, or similar product, to “finish the finish,” or enhance the sheen. For each grit, sand radially with the lathe running slowly, then axially with the lathe off, rotating the work by hand.

(7) Any thickness of CA build hanging over the edge of the pen barrel can be sanded flush and flat with a mid-range grit abrasive.

an expensive spraying setup. Readily available “rattle” cans will do fine. I don’t prefer any specific brand, but just buy the least expensive aerosol lacquer available in the discount stores.

An item that really helps when using a spray can is an inexpensive snap-on trigger handle. It locks onto the rim of most cans and gives you a grip and trigger, so you can use it like a pressured spray gun. This type of handle offers much better spray control than depressing the actuator directly with your finger. They are typically available in the paint department of home centers.

### Application

There are several ways to hold your pens for applying spray lacquer. I rarely use the lathe as a workholding device. I use skewers to hold the pen body while I’m spraying the lacquer. To hold them in place, put a bit of painter’s tape on the skewer so that the tape contacts the inside of the pen body. You can then rotate the skewer to reposition the pen blank at will.

After spraying, push the sharp point of the skewer into a cardboard box or block of craft foam (*Photo 5*). Be certain you are spraying in a properly ventilated area and using the necessary personal protective equipment (PPE)—in this case, a carbon filter mask. I do all of my spraying of lacquer outdoors.

Here are two rules of thumb for successfully spraying lacquer:

1. Most instructions say to shake the can for two minutes to get the lacquer mixed well with the propellant. Do it! It really works. If you let the can sit for any longer than a few minutes, shake it again to remix the contents of the can.
2. Mist the lacquer on patiently. There is a temptation to hurry the process and spray the lacquer too thickly. If you do this, the solvent will not flash off quickly enough and you’ll

## Durability



8 This pen is on its second set of metal components, with the original CA finish over the painted body. I’d call that finish tough enough.

have small “builds” of lacquer, and you’ll likely wind up with runs, for which there is no fix, other than to let the finish cure and sand it back enough to spray again.

If you spray lacquer in very thin coats, you can literally spray, wait a few minutes, and spray again. How many coats you wish to use is up to you; I often use five to ten light coats. After spraying, I allow the lacquer to sit overnight before moving on to the “Finishing the finish” steps.

### Finishing the finish

After applying a finish of CA, epoxy, or lacquer and letting it cure, you are now ready to punch up the sheen.

If the finish has been applied thinly and axially, there should be no ridges, ribs, runs, or other flaws needing leveling. You’ll only be driving the finish to that polished look. I do this by sanding with Micro-Mesh™, a cushioned sheet abrasive, and don’t begin at the lower end of grits. The coarsest grit is 400; I start in the middle of the range, sanding with the pen blank on the lathe and spinning slowly (*Photo 6*). I sand radially and stop the lathe to sand axially, along the grain, while rotating the lathe by hand. Wipe off any sanding debris with a paper towel before moving to the next grit.

Sanding with increasingly fine Micro-Mesh™ grits will increase the sheen on your finish. However, all of

the three finishes discussed in this article also lend themselves to buffing. I have had good success with pen-buffing wheels and jeweler’s rouge, which let you take the sheen to an incredible level. If you wish to knock back the sheen to a more matte look, fine steel wool will do the job.

If any finish overhangs the ends of your pen blank, don’t be tempted to break it off. Rather, sand it off, as shown in *Photo 7*.

### Conclusions

If you want a finish for your pens that will hold up to the rigors of a pen’s life, CA, epoxy, or lacquer are good choices (*Photo 8*). I suggest you practice applying the finishes on scrap material; if you use a “keeper” during the learning process, you might wind up ruining it and putting yourself off these finishes. If you work on scrap pieces and master the finishing process, you’ll be able to use the finish at will and give your pens a finish that will last for years. ■

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*Kurt Hertzog is a past president of the AAW, past chairman of the Rochester Woodworkers Society, and a council member of the Pen Makers Guild. He has written about woodturning and woodworking extensively for various publications, including Woodturning and Woodturning Design, where he published a long-running penmaking column. You can find all of these and many additional unpublished articles at [kurthertzog.com](http://kurthertzog.com).*