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# working with **Epoxy**

Two-part epoxy is a valuable asset in the shop — once you know how to work with it.

For most woodworking projects, plain old wood glue is my adhesive of choice. But I've discovered there are times when yellow glue won't cut it. When that's the case, I reach for two-part epoxy.

**What is it?** The two parts of epoxy are a resin and a hardener, or curing agent. When the two parts are mixed, a chemical reaction occurs to form an incredibly strong adhesive that is waterproof and doesn't shrink.

**Adjustable.** One thing I like about epoxy is that its curing time and consistency can be modified to suit the task at hand. For example, when I'm assembling a project with a lot of parts, switching to a hardener with a longer setting time will give me some extra time to get all the pieces in place.

You can also modify the consistency of the epoxy. Changing the thickness comes in handy if you're working on a vertical surface. Here a thicker epoxy won't drip and run out of a hole. The box on the

bottom of the opposite page will give you a few more details.

**Different Materials.** But the best thing about epoxy is its ability to glue together different materials, like metal to wood. (The Shop Tips box on the next page shows a few common shop applications.)

Working with epoxy can seem a bit intimidating. Unlike wood glue, you have to mix up precise proportions of resin and hardener each time you use it. It's the mixing stage that can trip you up and result in a poor-quality joint. But with the right techniques, you'll find yourself using epoxy more often.

## USING EPOXY

The first step in preparing epoxy is getting the proportions just right. The typical ratio is one part resin to one part hardener. But the ratio may vary from one manufacturer to the next. So it's a good idea to carefully read the directions.

Once the two parts are mixed, the curing process can't be

stopped. This means you can't save any leftovers for later. So try to measure out only enough resin and hardener to do the job.

To make mixing and cleanup as easy as possible, I've found wax paper or disposable plastic containers to work well. Just steer clear of foam cups. The curing process generates enough heat to melt them. (Trust me, I know.)

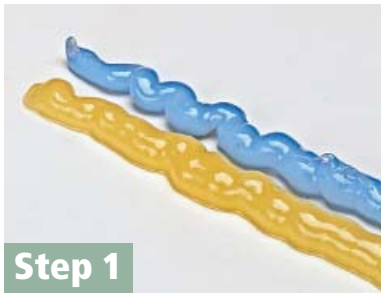
**Mixing.** Mixing up epoxy isn't like stirring cream and sugar into your coffee. If an epoxy joint fails, you can usually trace it back to one thing — mixing.

A square-tipped spatula makes it easier to get all the resin and hardener mixed together. To see how it's done, take a look at the four steps on the next page.

**Safety Tip:** Any time you're using epoxy, it's a good idea to work in a well-ventilated area and wear gloves and eye protection.

**Applying.** With the epoxy mixed, you're ready to apply it. Just make sure the joint is clean and

## Mixing



**Step 1**

**Proper Ratio.** Measure out the recommended amounts of the resin and hardener side by side.



**Step 2**

**Mix Thoroughly.** Use a square-tipped spatula and combine the two parts with a swirling motion.



**Step 3**

**Mix It Again.** Continue mixing the two parts by smoothing out the mixture and folding back on itself.



**Step 4**


**Consistent Color.** You'll know the epoxy is thoroughly mixed when the color is uniform.

dry and apply epoxy to both surfaces with a disposable glue brush.

Clamping an epoxy joint is a little different than with regular yellow glue. Instead of tightly squeezing the parts together, all you need to do with epoxy is simply hold them in place.

I like to use rubber bands and tape to get just the right amount of pressure. There's one other thing to note about assembly. You don't want a lot of squeezeout either. That will lead to a starved joint.

**Cleanup.** Once epoxy dries, it's almost impossible to remove. So I make sure to clean up any squeeze-out with a rag and some denatured alcohol. And just like an oily rag, be sure to let any unused epoxy cure before you toss it out. This way, any heat generated during the curing process won't result in a fire.

One final thing: If some epoxy gets on your skin, use a waterless hand cleaner to remove it. Denatured alcohol will just drive the epoxy into your skin. 

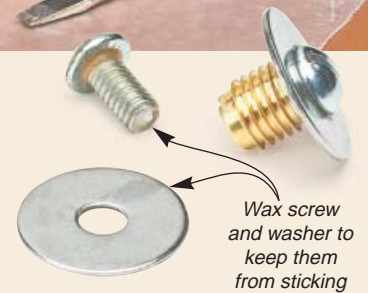
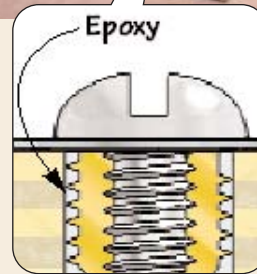
## Thicken with Adhesive Fillers



Adding fillers to epoxy adjusts its consistency without sacrificing strength. There are a variety of fillers available that are suited to specific tasks and working characteristics. For woodworking, I've found you can even make your own custom filler by sanding a piece of scrap with 320-grit sandpaper and mixing it in the epoxy.



**SHOP  
TIPS**



Wax screw and washer to keep them from sticking

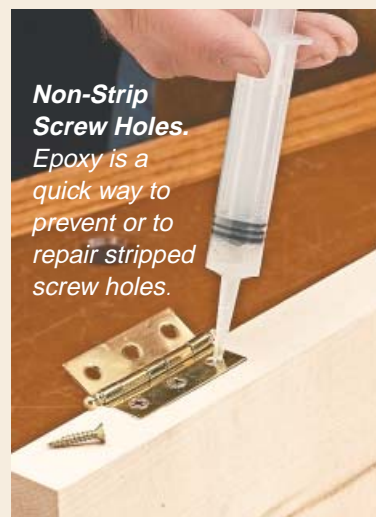
▲ **Super-Strong Threaded Inserts.** Putting epoxy in the hole for a threaded insert adds strength to the insert's grip, preventing it from stripping out.

One of my favorite uses for epoxy is "gluing" metal items, such as T-nuts and threaded inserts (top photo), in place on my projects. The epoxy adds strength to the hardware's gripping power, reducing stripout. But there is a technique to using epoxy this way.

I like to anchor the threaded inserts in an oversized hole with a little epoxy, as you can see in the photo and drawing above. When installing the threaded insert, I fit a screw with a washer in the threaded insert. The washer acts as a leveler for the epoxy. To keep the screw and washer from getting glued to the workpiece, you'll need to apply some paste wax to them. After the epoxy sets, you can remove the screw and washer.

You'll even find this technique works to fix stripped-out screw holes (middle photo).

Another handy use for epoxy is shown in the photo below. Coating the bottom of table legs prevents water from wicking into the end grain, which can lead to moisture damage and stains.



**Non-Strip Screw Holes.** Epoxy is a quick way to prevent or to repair stripped screw holes.



◀ **Sealing End Grain.** Coating the bottom of table legs with epoxy acts as a waterproof sealer.