

INLAYING METAL POWDERS

As with the cold-cast bronze technique for sculptures, a variety of resins (primarily epoxies, polyesters, and urethanes) can be used to cast metallic inlays into other art-works and woodwork etc.

The easiest method is to fill routed, or carved, areas with bronze, brass, copper or aluminium powder mixed with urethane resin. The best resin for this application is **Axson F18** which is a two part, cream coloured resin that's mixed 1 to 1 by volume which makes it very easy. The cream coloured resin results in a better bronze finish than clear resins, and the urethane is superior to polyester or epoxy in many ways.

The basic inlay process is to route, or sculpt out the shapes to a depth of about 5mm. Then mix up the resin and powder in mixing cups and fill the letters / shapes.

Pour out 2 equal parts of F18 A and F18 B into separate containers (by weight). Then measure out 2 containers of metal powder that are approximately $\frac{3}{4}$ of the volume of the two parts of F18 that you measured out previously. Combine (mix thoroughly) one of the containers of metal powder with part A of the F18. Mix the other container of metal powder with part B of the F18. Now you are ready to combine part A and part B. It is important to note that once part A and part B are combined, you only have about 3 minutes to mix and pour the resin (so don't mix more than you can use in the available time or it will harden in the mixing cup). The mixture will be a rather thick "goo" that you will need to pour (or spoon) into the areas to be inlayed, help it in with a toothpick as necessary. Overfill the routed areas as much as you can without too much spreading beyond the edges and onto the surface. A guide would be to overfill by around 2mm. The reason for so much overfilling is that the metal powder settles, leaving the top of the hardened resin without enough left in it for a good, or even, metallic finish. This effect of gravity is a benefit for cold-cast sculpture, but a potential problem for inlay work.

As stated previously, the F18 resin sets very quickly (in a few minutes) which is why such small quantities are mixed at one time.

After waiting at least an hour (overnight is better) use 80 grit sandpaper on a dust-free orbital sander (or by hand with a sanding block) to remove almost all the excess inlay material - to the point where there's a bit of feathered "flash" around the edges of each letter. F18 is quite hard, but it sands very easily, so this is a satisfyingly fast process. As always, wear dust mask. Then use 180 grit to bring everything truly flush. At this point you may need to mix up another batch of resin and fill several little pits caused by air bubbles, let it cure and re-sanded with 180 grit paper. Then gradually work your way down with 240, 400, 600 and finally 800 grit, as for any fine wood project (you can go as far as 2,500 grit depending on the finish you require).

Finally finish your work with thin coats of your preferred lacquer. We recommend **UT100 clear gloss or mat finish** (through conventional spray equipment). This is a particularly tough polyurethane finish, with UV stabiliser. Alternatively, you could consider a high gloss (thick decoupage epoxy resin) like **Kraft Kote**.

Three things to be aware of:

(1) The measurements of Part A and Part B need to be as accurate as you can or the resin won't cure.

(2) Don't push the setting time of the resin or go back and add to already filled areas. Fill each area correctly the first time, or there will be noticeable lines in the metallic finish due to the different densities of metallic powder.

(3) Finally, even though the urethane is odorless, you should ensure that you use the F18 in a very well ventilated space, and wear appropriate personal protection (gloves, goggles etc). Refer to the MSDS for the product for more information.

We encourage you to try this "cold-inlay" technique. It's quick, easy, and inexpensive - well worth the effort. Its versatility lends itself to creative possibilities well beyond simple letters.