



## TIPS & TRICKS

Another helpful idea that will simplify and improve your engraving and routing projects.

### COLOR FILLING

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Even though there is a wide variety of engraving materials available in a multitude of colors, thicknesses, and finishes, there are times when it is desirable to color the engraving to enhance the overall appearance of the product. The three basic color filling processes are described below.

#### Oxidizing

Oxidizing with a mild acid is used to blacken engraving on brass and aluminum. Since this oxidizing process isn't selective as to where it works, it can only be used on metals that have some kind of coating that is removed in the engraving process.

Brass is coated with lacquer or some other durable finish. Aluminum can be coated with lacquer, or it can be anodized. When we remove these finishes with a diamond graver, burnisher, or a rotary cutter, the exposed areas can be blackened with the oxidation solution without having it affect the rest of the plate.

While most oxidizers are supplied with a dauber, this involves continuously putting the dirty applicator back in the solution. A better method is to use cotton swabs, discarding them after each use. It is equally important that the engraving be clean and free of any oil or even fingerprints. Since the bare metal goes through a natural oxidation when it is exposed to the air, it is a good idea to oxidize it soon after it is engraved so the full effect of the oxidizer is achieved.

Apply the oxidizer liberally to all of the engraving. It sometimes helps to actually "scrub" it into the letters with the swab. Allow the engraving to darken and then rinse the plate with water to stop the oxidation process.

**COLOR FILLING (Cont.)**

If the oxidizer is left on too long the blackened areas may turn gray and chalky and even flake out of the engraving.

After rinsing, blot the plate softly with a cloth or paper towel, being careful not to rub the black out of the letters. You can make a final clean-up after the plate has dried. If there are any areas that didn't take, you can go back and repeat the process. Oxidized engraving tends to have a dull, lusterless appearance. It is possible to enhance it by applying silicones, spray lubricants, or even furniture polish to the plate but their effects don't usually last long.

**Paint Stick**

Applying a color fill material into the engraving can only be done on rotary engraved plates with sufficient depth and is usually done with paint or a paint stick. A paint stick looks like a large crayon, is available in a variety of colors, and is simple to use.

First, shave the end of the stick to remove any skin that has formed. Next, rub the stick back and forth across the engraving until the letters are filled. Then wipe off the excess with a cloth or paper towel. Alcohol and paint thinner are effective in removing any residual film, but the easiest way to completely clean the template is to allow it to dry overnight and then wash it with warm water and a non-abrasive cleaner. Paint sticks are easy and reasonably durable, but they never get completely hard and don't offer the smooth, glossy appearance that paint does.

**Paint Filling**

Paint filling offers the broadest number of options in terms of materials, colors, and applications. For metals and rigid plastics (phenolics and acrylics), it is best to use a fast-drying, oil based enamel and mineral spirits for the cleaning operation. On soft plastics and other materials that may be affected by caustic solvents, use latex or acrylic paints and water or alcohol for clean-up. In addition to the paint, all you'll need are an inexpensive brush, an old phone book, and some pieces of stiff paper about the size and weight of a business card.

The engraving should be smooth, free of burrs, and have sufficient depth to hold the paint. As a rule of thumb, with characters up to 1/4" high, engrave to a depth of .010" - .012". On larger characters, it is advisable to go .015" - .020" deep depending on the line width and filling technique used.

**COLOR FILLING (Cont.)**

Brush the paint on liberally so that it is thick enough to hide the cutter marks after drying. Immediately after filling, hold one edge of the cardboard so that its straight edge rests against the plate and scrape off the excess paint, leaving just a thin film. Wait about 5-10 minutes until the paint has started to set-up before starting the clean-up process.

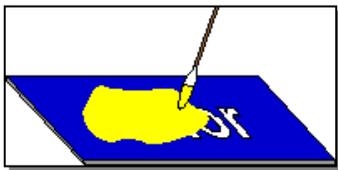
To clean the surface of the plate, wrap two or three thicknesses of a lint-free cloth tightly around a wood or plastic block and dampen it with thinner—don't use too much or the thinner will remove the paint in the engraving.

Wipe the surface of the plate lightly in one direction until the paint residue is removed (pressing too hard might wipe the paint out of the characters). Pages of a telephone book are often used instead of cloth. Their texture allows them to absorb the thinner, and they don't give off lint.

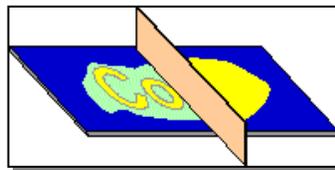
It is best to allow the plate to dry, preferably overnight, and then to do the final clean-up when the paint in the characters has completely set. Use soap and water or a cleaner that will remove any oily residue left by the paint and thinner.

Some systems utilize small plastic squeeze bottles with needle-like nozzles or other more elaborate mechanical dispensing systems which eliminate most, if not all of the cleaning.

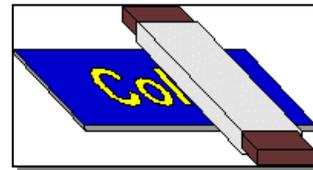
Some of the best sources for small amounts of paint in a rainbow of colors are touch-up paint from the automotive store and paint sold at hobby and art supply stores. Always test the paint before applying it to your finished engraving to make sure it will not affect the plastic.



1: Fill engraving with paint



2: Scrape off excess with card stock



3: Wipe clean with block wrapped with cloth dampened in thinner