



## Etching

Etching is the process of chemically removing metal to create a design or pattern on metal. There are many different types of chemicals and resists that can be used. Three things to think about are the acid, time and temperature.

**Safety** – Always add acid to water! This will avoid a chemical reaction. Wear gloves, goggles and an apron. If the acid should touch you, neutralize it with baking soda and then wash the area.

**Common Etchants** – use etchant solutions in a glass beaker or container. They can be stored for use at a later date.

Ferric Chloride – 4 parts water to 1 part acid

Nitric Acid – 3 parts water to 1 part acid

Salt Water – Highly concentrated salt water and electricity.

**Resists** – There are many different kinds of resists, picking the right one depends on your design and the type of metal you wish to etch. Before applying your resist, make sure your metal is clean and dry. Make sure to apply your resist to the back and sides of the piece, along with anywhere you don't want to be etched.

**Resist Pens** – Fast drying lacquer based sharpie that comes in fine and extra fine point. You can also use paint pens but they are much less fine and create a thicker layer. \*Do not use with salt water etching!

**Bees Wax** – Can be dipped or applied with a paint brush. Heat your metal slightly to keep a thick layer from forming. You can use a scribe to carve away the bees wax and create a design. You can also file some bees wax on to the surface of your metal to create a unique texture.

**Shellac** – Similar process to beeswax but much harder to remove.

**Nail Polish** - Can be used to cover the entire surface or the brush (or other fine point) can be used to draw on a design.

**Tape** – Used for creating sharp angular lines. If you just use the tape, acid may creep under the tape. Can be used along with other resists, put the tape down, paint the resist in areas not covered to create sharp lines and then remove the tape. Adhesive stickers can be used the same way.

**PnP Paper** – Used for photographic transfers of images that have been drawn, printed or found on the web. (Know your copyright laws!) \*Can ONLY be printed on DRY TONER or LASAR JET printers.

**Asphaltum** – A slow drying varnish that protects metal from being etched. 5 hour drying time. Use with ferric chloride etchant. \*\* This solution contains Asphalt & Petroleum Distillates. Use in a well ventilated area & avoid prolonged contact with skin as well as prolonged inhalation. \*\*

**Removing Resists** – You can remove resists after you are done etching using acetone or denatured alcohol. If you choose the nail polish option you can simply remove it with nail polish remover. Paint thinners also work for removing resists.

**What to do with your chemicals** – You can store your acids to be used again, keep your acids covered in a cool dark place. Make sure they are away from any children or pets. Once they no longer etch you need to neutralize your acids using baking soda and then bring them to hazmat.

**Layering Resists** – Remove the resist, clean the metal again and reapply the resist.

**Etching Options** – Inlay the recessed area with stone or enamel.

Make a roll plate instead of etching silver to save on material and costs.