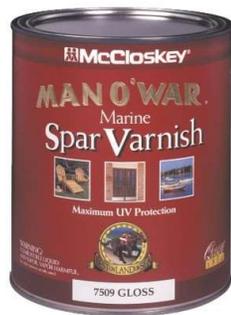


## Japanning 102, A Cure for the Common Cold Mix.



For a full discussion on various japanning mixes, quality of finish, durability and tips and techniques for success, refer to my earlier article, *Japanning, or The Art of Embracing the Arcane* at [www.aPlaneLife.us](http://www.aPlaneLife.us). I highly recommend reading this article before beginning your project to understand the various mixtures and results. Having proper expectations goes a long way toward success.

At the request of some readers, this series of articles will serve as a condensed, “how-to” for japanning an antique cast iron hand plane using various japanning products and mixtures. This second article in the series will cover the preparation and use of “Cold Cure” japanning, a mix of asphaltum and Spar varnish and how to heat cure it. This japanning mixture is simple to prepare and provides a very deep black, glossy finish closely matching original japanning.

“Cold Cure” japanning has been defined as capable of completing the hardening process at room temperature. While true, in my experience it takes at least 2 weeks for a thin coat to cure. It can require even longer to harden depending on temperature and thickness. In this article I provide a heat curing process that cures the common cold in hours. Cold cure japanning produces a very dark, deep and rich finish. The drawback is that it is more temperature sensitive during heat curing.

Japanning cast iron is 49% product and 51% technique. You will have to develop techniques that help you achieve success. This article will provide a starting point for success by providing the tips and techniques that have worked for me.

### Materials List

- Powdered asphaltum (Gilsonite, available in one pound lots on eBay)
- McCloskey Man-O'-War Marine Spar Varnish
- Dishwashing soap or commercial degreaser (Purple Power from automotive supply houses)
- Nylon brushes for removing dirt, grease, and sawdust
- Bead Blaster and abrasives or electrolysis equipment or paint stripper and wire brushes for removing old japanning. (see Step 2 Preparation for discussion on methods for removing the old japanning)
- Turpentine for cleaning japanning from tools
- Acetone for surface prep
- High quality ¼” to ½” wide, ½” long or shorter artist’s brush
- Toaster oven for heat curing

### **Step 1 Purchase the Ingredients for Your Japanning Mixture**

I recommend obtaining and mixing the "Cold Cure" japanning prior to beginning any other procedures for refinishing your plane. Cold cure japanning mixtures require extra time to settle, undisturbed, prior to use. Otherwise, undissolved asphaltum particles will end up in your finish producing an undesirable pebbly texture. Allow your cold cure mixture to sit at least 72 hours prior to use. For asphaltum I recommend gilsonite. It is available in one pound lots from on eBay. This is enough to mix over a quart of japanning. Use caution as Gilsonite is like copier toner, it gets everywhere! I have tried various varnishes and polyurethanes and bar far the best results are with McCloskey Man O' War Marine Spar Varnish. If your local paint supplier does not stock this exact item, it is available online. It is a good idea to collect your other materials prior to beginning your project. Materials for removing old japanning (see step 2 Preparation), high quality ¼' to ½" wide ½' long or shorter artist's brush, turpentine for cleaning up, and a toaster oven for heat curing.

### **Step 2 Mix the Japanning**

Transfer the amount of varnish you believe will be necessary to apply 2 coats to your projects into a resealable container, I recommend a half pint. A small mason jar or a 1-pint paint can will suffice. A pint of japanning will cover approximately 15 size 4 hand planes. A half pint is easy to mix and allows enough room to dip your brush without contacting any undissolved gilsonite at the bottom of the container. Starting with a ratio of 3:1 varnish to asphaltum, mix in the asphaltum adding additional asphaltum until you have a syrup like consistency. The mixture will thicken over the course of a week or so, eventually reaching the desired heavy syrup or cake batter consistency. Set the mixture aside to settle for 24 hours. Re-stir scraping the undissolved asphaltum from the bottom of the container. Mix for 5-10 minutes. Set aside and let it settle for a minimum of 2-3 days. The longer it sits undisturbed, the less particulate matter you will have in the finish.

### **Step 3 Preparation**

All parts being japanned must be completely cleaned of rust, old japanning, and any dirt, oil, or other contaminants. First remove all dust, grease, sawdust, etc. Washing the parts using dishwashing detergent or commercial parts degreaser will suffice. If you are not going to immediately begin removing the japanning, thoroughly dry the parts to prevent adding to existing rust.

Next remove any remaining old japanning. My preferred method for removing old japanning is bead blasting with 80grit glass beads at 60-80psi. This can be done with no effect on the cast iron as long as you pay attention. Walnut shell abrasive or corn cob abrasive will also work with less risk of damaging the cast iron but is slower. If that is not an option, electrolysis is the next best option. There is copious information available online for home electrolysis setups. Otherwise chemical removal of old japanning can be done. Commercially available paint stripper along with plenty of elbow grease and small wire brushes will leave you with bare cast iron. Thoroughly wash off any paint stripper following manufacturer's directions.

After removing the old japanning the parts should be cleaned with turpentine, then wiped down with acetone just prior to application of japanning. Use care not to touch any surface with your bare hands that will be japanned as the oil from your hands can disrupt the japanning. Work in a dust free environment. Uncured japanning is very sticky, and any debris will adhere to the surface like flypaper.

Once baked in, the pieces of sawdust, eyelashes and brush fibers are a permanent part of your restored hand plane.

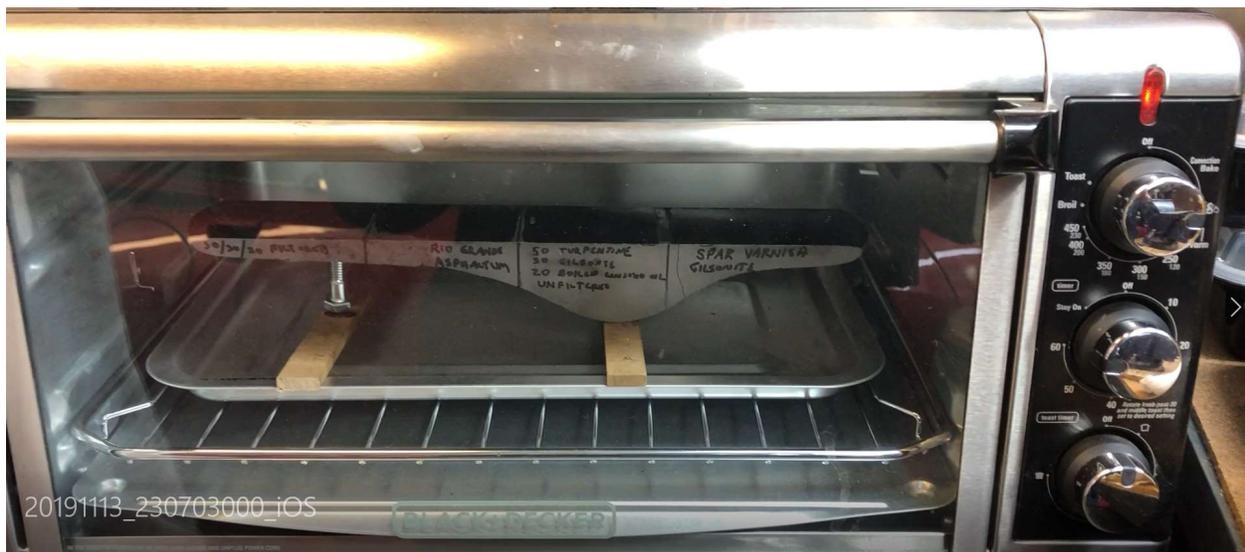
#### **Step 4 Apply First Coat of Japanning**

Work in a dust free environment! Any dust or foreign material that lands on your uncured japanning will become a permanent part of your plane. Avoid the heartache and avoid any dusty area when japanning.

Prior to application of cold cure japanning carefully remove the dried layer or skin that has formed on the surface of the japanning and discard, it will not reabsorb into the mix. Using a quality ¼' to ½" wide ½' long or shorter artist's brush, apply a thin to moderate layer on all desired surfaces. There is minimal sag or flow to this product. You should have a dark brown to slightly black finish with the first coat. If in doubt, thinner is better. After application of the first coat, allow the parts to sit for about an hour and the japanning will flow out to a uniform smooth finish at room temperature.

#### **Step 5 Heat Curing**

Intermediate heat curing is required before adding additional coats of japanning or the japanning will not cure for months. This is an intermediate heating cycle used between coats. Always begin with a cold oven. Cold cure japanning is especially heat sensitive and will wrinkle if rapidly heated or cooled or heated over 170F on initial cure. I suggest using an oven safe thermometer to monitor your oven temperature. Place the japanned parts in the cold oven supported by heat resistant non-metallic blocks. Direct contact with any metal parts of the oven promote uneven heat transfer and may promote wrinkling. Heat the parts to 170F and hold at temperature for 2 hours. Allow to cool completely in the oven. Remove and apply an additional coat of japanning as desired and heat treat as before. Repeat this process until the desired depth of japanning and color are achieved.



#### **Step 6 Final Heat Cure**

Once you have the built-up layers to your desired finish, you can then apply the final heat cure cycle to harden the japanning. Again, begin with a cold oven. Set the initial temperature to 170F and allow the plane to come up to temperature. Then over the course of 30 minutes raise the temperature up to 350F

for 2 hours. After this cycle is complete, leave the plane in the oven to cool undisturbed. Allow the finished plane to rest at room temperature for 24 hours and you should have a rich, deep glossy hardened japanned finish. If you get wrinkling, you have heated too high, too fast (you can see some minor, but unacceptable wrinkling on the edge of this test bed resulting from overheating).



### **Trouble Shooting**

As far as troubleshooting your finish, here are some of the issues I have encountered and what I believe are the underlying causes and solutions:

#### **Cold Cure Japanning**

- Finish has debris or bumps. Probably undissolved asphaltum or dust. Allow the product to sit undisturbed for additional time to settle. Only dip brush in top of product when applying. Monitor your environment when applying and cooling plane to ensure it is dust free. It may be possible to lightly sand the japanning after the initial heat cure cycle to minimize the bumps. Use 400 grit or finer paper and remove all dust with compressed air prior to adding layers.
- Finish is still tacky, or soft enough to leave an impression with a fingernail. Either repeat the final heat curing cycle or simply allow more time to cure at room temperature.
- Mixture does not harden after multiple final heat cycles. Most likely it was applied too thick. You can add additional baking cycles and may, eventually get a cure. Or set it aside for several weeks and it may harden. I have stripped (turpentine will make quick work of it) and started over when faced with this. I tried up to four heat cycles and still did not overcome an overly thick application.
- Cheek/plane bed meeting points have too much japanning. If you apply too thick of a coat, the japanning will slowly sag into this area while cold curing and again when heat curing. Apply multiple thinner coats. If you have not heat cured the plane yet, you may be able to thin out the heavy areas with your brush dipped in turpentine. Dry most of the turpentine out of the brush with a paper towel before brushing the thick areas out.

Please share your experiences, successes, failures, improvements, alternatives and, most of all, pictures, with me at [Fulton.Planes@comcast.net](mailto:Fulton.Planes@comcast.net). I look forward to hearing from you and especially learning from you.

Watch for the next article in the Japanning series, *Japanning 103, Traditional Japanning, The Black Hole of Finishes*.

Watch for an upcoming video on developing, testing, and applying japanning mixtures for cast iron hand planes at [www.aPlaneLife.us](http://www.aPlaneLife.us).