

Japanning 101. Japanning in a Can, Easy Peasy



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. I highly recommend reading this article before beginning your project to understand the various mixtures and results. Have 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 series will start with the easiest method, commercially available japanning mix.

This article will only cover the use of commercially available Rio Grande Asphaltum Varnish, although the tips and techniques should apply equally well to another commercially available pre-mixed japanning, Old PontyPool. I have chosen to focus on the Rio Grande product as I have significant experience using it, and it is very favorably priced compared to Old PontyPool. Affordable, economically sized and delivered to your door, easy. This product delivers a very deep, rich finish. Absolutely beautiful. Rio Grande Jewelers Asphaltum Varnish is available in pint cans online for about \$17.00 plus shipping. Old PontyPool is sold by the quart at around \$84.00 plus shipping. A pint of asphaltum varnish should cover about 15 size 4 hand planes. Old PontyPool may have more favorable performance, I have not used it, but given a limited shelf life and the quantity sold, I believe more people will be satisfied with the Rio Grande product. The downside, in my research, was a weaker japanning to metal bond than is possible with other mixtures. This is not to say it is poor. I found it about as durable as DupliColor engine paint. While I do not have experience with Old PontyPool, I suspect it will provide a better japanning to metal bond, but at a cost.

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 work for me.

Materials List

- Japanning mix (Rio Grande Jewelers Asphaltum Varnish or Old PontyPool)
- 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 $\frac{1}{4}$ " to $\frac{1}{2}$ " wide, $\frac{1}{2}$ " long or shorter artist's brush
- Toaster oven for heat curing

Step 1 Purchase the Japanning Mixture

All japanning mixtures need to sit, undisturbed at least 24 hours prior to use. I recommend allowing products that have been shipped to settle for at least a week prior to use. Otherwise, undissolved asphaltum particles will end up in your finish producing an undesirable pebbly texture. 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 $\frac{1}{4}$ ' to $\frac{1}{2}$ ' wide $\frac{1}{2}$ ' long or shorter artist's brush, turpentine for cleaning up, and a toaster oven for heat curing.

Step 2 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. Lastly, is chemical removal of old japanning. Commercially available paint stripper along with plenty of elbow grease will leave you with bare cast iron.

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 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.

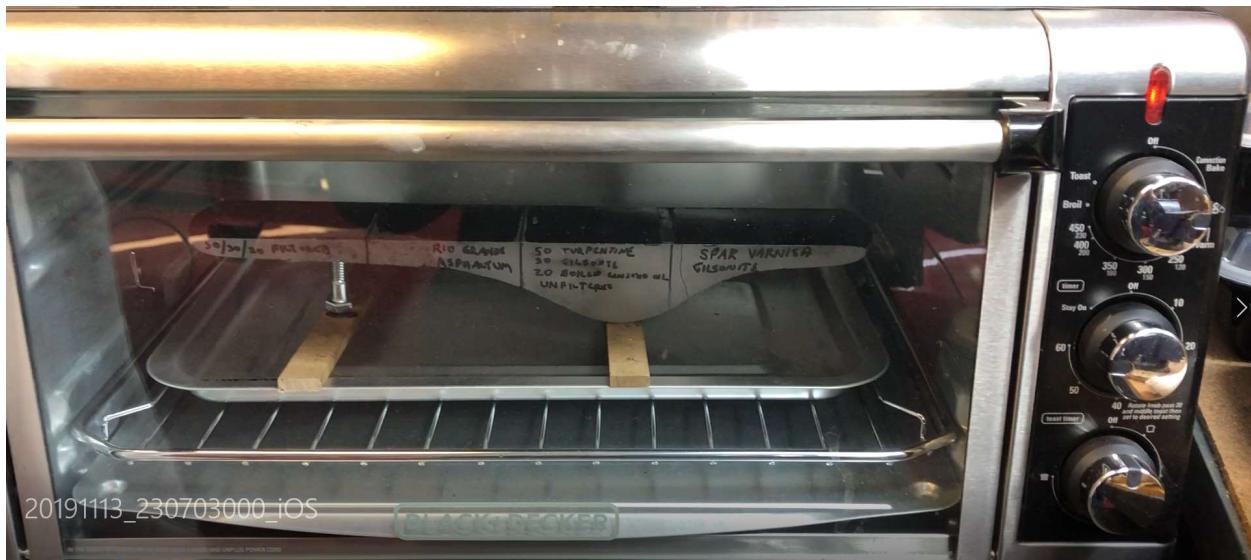
Step 3 Apply First Coat of Asphaltum Varnish

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

Using a quality $\frac{1}{4}$ ' to $\frac{1}{2}$ " wide $\frac{1}{2}$ ' 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 transparent 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 4 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. Place the japanned parts in the cold oven supported by heat resistant non-metallic blocks, heat the parts to 180F and hold at temperature for 1 hour. 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 5 Final Heat Cure

Once you have the color and depth of japanning you desire, you can begin the second phase of heat curing, place the parts in a cold oven and slowly raise the temperature to 400F over the course of 30 minutes. Hold the parts at this temperature for 1 hour, then let cool in the oven. Let the parts sit for 24 hours. The finish should not be tacky and may have a slight rainbow sheen akin to petroleum on water. If the parts are still tacky or can be impressed with a fingernail, repeat the second stage heat cure process for up to 2 hours. Once the japanning is fully cured, any rainbow sheen can be buffed off by hand with a cotton cloth without damaging the finish. Congratulations, you should have a beautifully japanned plane with a "black-hole" like depth to the finish.



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:

Rio Grande Jewelers Asphaltum Varnish

- Finish has debris or bumps. Probably undissolved asphaltum disturbed during shipment. Allow the product to sit undisturbed for a week. Only dip brush in top of product when applying. Monitor your environment when applying and cooling plane to ensure it is dust free.
- Finish has rainbow sheen to it. This appears when heat cure temperature exceeds 300F. It should buff off with a clean linen cloth once fully cured. If not, try reducing final heat cure temperature and extend cycle time.
- Finish still tacky, or soft enough to leave an impression with a fingernail. Either repeat the heat curing cycle or simply allow more time to cure at room temperature.
- Mixture does not harden after 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 a 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.
- Japan finish is bumpy like there are grains of sand in it. Mixture needs to be allowed to settle. The particles in the finish are likely undissolved asphaltum. It is also possible dust settled onto your plane before it was completely heat cured or your brush was contaminated. The japanning is sticky until fully heat cured. Any dust in the shop will attach to the surface then bake in. You

can try adding another coat and see if it will self-level to improve the appearance, but be prepared to strip the plane and start over.

- This is taking too long, or the process is too complex. It's all about learning to enjoy the process of reviving old, neglected tools that will live on for generations. If you don't enjoy the process, learn to live with the original japanned finish and all its chips, or break out the spray paint. Just be an honest broker and let people know your plane is enameled, not japanned. There is enough distrust in the world; don't drag our antique hand planes into the mess.

Lastly, share your experiences, successes, failures, improvements, alternatives and, most of all, pictures, with me at 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 102, A Cure for the Common Cold Mix*.

Watch for an upcoming video on developing, testing, and applying japanning mixtures for cast iron hand planes at www.aPlaneLife.us.