

“Popping” the Grain

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Popping the grain is a set of techniques used to emphasize chatoyance in wood figure. It is a two-step process wherein dyes and/or oils are used to penetrate into the wood surface followed by a top coat finish.

Coloring

- **Aniline Dyes** Advantages: They are easy to work with, there are many colors, and cleanup is easy. Disadvantages: Colorfastness is not great. In 5-10 years a piece can show signs of fading even if not exposed to sunlight. For chromatic colors I like Artisan pre-mixed (Craft Supplies USA) and for earth tones Behlen Solar-Lux NGR dyes. It is less expensive to buy powders and mix your own but beware - these powdered dyes are extremely concentrated and spills are disastrous.
- **Metal Acid (or Complex) Dyes** Advantages: Colorfastness is excellent and they are available in a water base that can also be mixed with alcohol. Disadvantages: Feathered applications are difficult without an airbrush. I like TransTint (WoodCraft.com) but there are others.
- **Transparent Acrylic Paints** Advantages: Colorfastness is excellent, there are many colors, and cleanup is easy. Disadvantages: Feathered applications require an airbrush and acrylic paint doesn't add to chatoyance itself but can be applied in conjunction with other techniques. I buy Golden brand transparent acrylic airbrush paint from ArtSupply.com but there are many.

Penetrating Oil

- **Boiled Linseed Oil** BLO has the smallest finishing oil molecule size and penetrates the deepest into wood giving the greatest transparency and hence chatoyance. Apply liberally until wood absorbs no more, then wipe off excess and allow to dry at least several days.
- **Dilute Epoxies** Epoxy can be diluted with acetone and will enhance chatoyance. This takes experimentation with different woods. Start with West System 105/205 epoxy diluted with 25% acetone. Stir thoroughly in a can (not plastic) then rub on wearing vinyl gloves.

Top Coat

- **Danish or Tung Oil** These oils can be thinned with mineral spirits but the resulting penetration is about the same as unthinned oil. Use as a top coat and buff after curing
- **Wipe-On Poly** WoP is an excellent surface sealant but requires light sanding between coats. The slow drying property allows dust to accumulate in the finish. Keep a clean room and use buffing to remove this tiny particles.
- **Lacquer** Precatalyzed nitrocellulose lacquer is my personal favorite. Advantages: Easy to apply, easy to repair, it's easy to maintain the spray equipment, creates incredible optical finish with maximum chatoyance. Disadvantages: tedious to remove surface imperfections and touchup. I prefer Hood Magna-Shield and Behlen Musical Instrument Lacquers. Aerosol cans of lacquer are almost all solvent with little solids. Buy a spraygun and practice and you'll save a small fortune. Go to www.stewmac.com for a tutorial on spray guns.

“Popping” the Grain (continued)

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My process for popping the grain has varied over time. Understanding all the pluses and minuses takes experience but here are three typical processes I have undertaken in chronological order over the last few years. Note that I never use lacquer over an oil finish because I'm concerned about long-term adhesion problems. I don't use any sanding sealer or vinyl sealer layer because this places a weaker layer between the wood and the lacquer. A light coat of lacquer is its own sealer.

Boiled Linseed Oil with Optional Dye

1. After the work is sanded to 600 grit ,heat the work to about 120F (very warm, not hot).
2. Mix 1:1 parts boiled linseed oil and mineral spirits then apply heavily to the heated woodwork. Aniline dye can be added to the mixture if coloring is desired.
3. After 30 minutes wipe off the excess and allow the woodturning to cool. While cooling the thinned linseed oil is drawn into the wood pores and the mineral spirits boil off.
4. Let the piece cure 3 or more days then lightly sand with 600+ grit and apply several coats of Wipe-On Poly. If an oil finish is used it may dull over time due to out-gasing.

Finishing Resin with Optional Dyes

1. After the work is sanded to 400 grit ,heat the work to about 120F (very warm, not hot).
2. Mix 2:1 parts Z-Poxy finishing resin (from lmii.com) and denatured alcohol, then apply heavily to the heated woodwork. TransTint dye (joewoodworker.com) can be added to the mixture if coloring is desired.
3. Slather the mixture on and wipe off the excess after a few minutes. Allow the piece to cool and cure 12+ hours.
4. Sand the light coat of surface resin off of the work using 400 grit. If the surface has pores showing repeat steps 2 and 3.
5. When the surface looks perfect sand to 600 grit.
6. If dyed accents are desired this is the time to airbrush the dye onto the surface.
7. Apply a top coat of your choice.

Top Coating with Lacquer

This is essentially the technique used on wood musical instruments. Lacquer is very effective for popping the figure. It sounds like the easiest approach but requires experience to do well. Use a spray gun with precatalyzed nitrocellulose lacquer instead of aerosol cans. These cans are mostly solvent and for the cost of 4 aerosol cans you can buy a gallon of high quality Hood MagnaShield lacquer. I never use water-based lacquer because I haven't had good results using it with my mineral crystal inlaid woodturnings.

1. The piece is given 12+ light coats of lacquer where any orange peel surface is wet-sanded off with 1000 grit between every 4th coat. Heavy coats can crack later.
2. Buff with Moser's medium buffing compound then polish with white diamond followed by carnauba wax (I use a separate cotton wheels for each at 1700rpm). Buffing above 1700 rpm is fraught with danger because the lacquer can melt if overheated.