

## Snake Skin Blanks---How I make them---

A couple of years ago I was searching for pens and wandered upon a snake skin slimline made by master pen maker and Pen Maker's Guild member Jay Pickens. Locating Jay in Ft. Worth, Texas was even more exciting since I live just 120 miles away and travel through often. I contacted Jay and stopped for a visit and the rest is history. Jay and I have both experimented with PR casting and sharing with each other our experiments, successes, and failures. My polyester resin casting was learned from articles written by Jay Pickens and from visiting with Jay on my trips through Ft. Worth. Jay also has an excellent article on embedding in polyester resin...anything that can be glued to the pen tubes can be embedded. Thanks Jay for all you have taught me!

But, I think the real credit for snake skin blanks should go to the person who made the first ones...as far as I can determine. The idea came while visiting at the first Penturners Rendezvous during the Utah Woodturners Symposium in Provo, Utah. The challenge was accepted and a short time later the first snake skin blank cast with polyester resin came onto the scene. The blank was made by Dave Baldwin. Dave and his brother Bob now make many of the blanks we purchase from our suppliers. Thanks Dave for introducing us to this beautiful medium for making pen blanks. Next to wood, I must say that these snake skin blanks and especially the pens are some of the most beautiful ones around. Not everyone will agree. Most people either love or hate these pens.

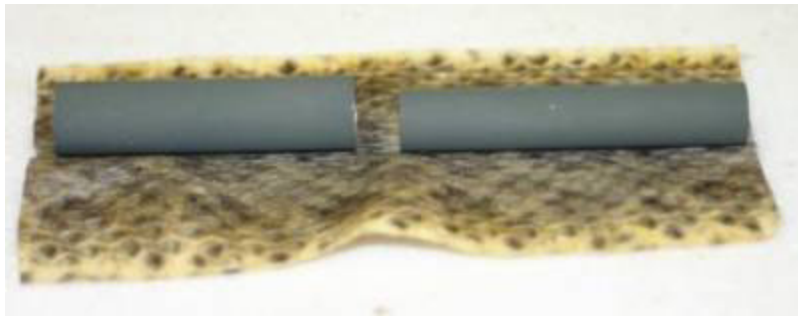
At the last Penturner's Rendezvous Dave and I visited and compared notes on successes and failures. Both of us have several casts that are not even close to useable. Dave has boxes of them and I have one box of failures. Yes, failures. Many failures for me before perfecting the process I use.

Air bubbles were the most difficult for me to eliminate. There is an additive that will reduce air bubbles. I never tried it. Pressure casting was found on some casting forums and I set out on perfecting pressure casting without buying an expensive pressure tank. Hence the now infamous Harbor Freight Pressure Paint Tank. Pressure casting helped tremendously, but was not 100% successful for me. But after adding the vacuum step I have cast several blocks and each one has been 100% useable. Casting smaller blocks using pressure only has been successful for Jay Pickens. Jay casts 4 tubes at a time and does not vacuum. He only uses pressure and is quite successful. But casting 10-12 tubes at a time was a problem for me. HEAT was the real problem along with the bubbles. Reducing the catalyst and using vacuum and pressure worked for me. Good luck with your casting and I hope this tutorial will get you started making these blanks.



Here are some or most of the items you will need to cast the snake skin blanks. The use of each item will be explained as they are needed. You may substitute other similar items in place of the ones I've used.

The pictures I'm using were taken from the casting sessions of different kits so the tubes may be not all be from the same kit. I do hope there is no confusion seeing different kit tubes.



Measure and cut a section of skin long enough for the two tubes of the kit being made. Then, cut the section of skin into two parts, one for each tube, leaving the sections a little longer than the tubes. Notice that the tubes are painted. I use spray paint...camo green...satin finish. I also use flat black. Painted tubes keeps the brass from showing through the skins.



Trim off the belly scales, but be sure not to trim the skin too much. The skin section needs to be able to wrap around the tube and overlap itself by about 1/16 inch.



Dry fit the skin to the tube to make sure the length and width are what is needed. When this is satisfactory, the gluing of the skin to the tube is next.



Place a bead of CA down the middle of the skin. I use medium CA to give a little more working time.



Set the tube on the glue bead and hold until set. Then roll the tube to one side and the glue will squeeze in front of it. Turn the tube/skin around and place another bead of glue next to the tube and roll it toward the end. Overlap this second edge over the first edge. Do not try a butt joint. The overlapping joint is the only one to use.



Roll the tube under your fingers to insure the skin is tightly glued to the tube. Pay close attention to the seam and the edges. Apply moderate pressure to press the seam together and the edges against the ends of the tubes.



Two finished slim line tubes ready to prepare to be eternally encapsulated in polyester resin. The seam side is the side being viewed. Looks good, huh!



Close-up of the same tubes showing seam side (on top) and the "show" side on the bottom tube. Funny thing happens when people look at a snake skin pen. Most people look and comment how nice it looks and how much they hate snakes. When another penturner looks, he/she turns the pen over and examines the seam...and if I'm lucky, they have to look hard to find it.





Now, let's move one. Corks are needed to close off the ends of the tubes. Now, let's move to the next step...preparing the tubes for casting. The major problem is to hold the tube off the bottom of the mold. Many things were tried and corks proved to be the best choice, for me and others, at least. Others may discover a better or easier way to do this. Anthony Turchetta explains how to cast skins using a two pour casting in his excellent article on PR casting.



**Run a bead of medium CA around the cork and securely place it in one end of the tube. Fill with weights (remember, I use BB's), then CA the other cork and place it in the other end. Be sure the glue makes a good seal all of the way around the cork and the brass tube's end.**



After corking both ends and filling the tubes with BB's (not our friend Bill B. but little copper spheres used in air rifles) the tubes are now ready to glue to the square stand-offs. One drop of CA on each cork end and place the cork in the center of the square cut stand-offs. The squares are cut from 3/4 inch square stock of any available scrap wood. Cut the squares thin and the tubes will not want to float in the PR as readily as using thicker squares. Some of my pictures may show thicker squares, but I now cut them very thin...maybe 1/16".



Finished tube with snake skin, weights, corks, and standoffs. This snake skin tube is now ready to cast. Make a few more and cast all at once. I cast 10-12 tubes at a time, but casting tubes for one or two pens will work.



Here is my mold filled with tubes ready to cast. I identify the tubes to keep the pen pairs together. I cut the skin patches from adjacent areas of the skin and like to keep the skin matched on the same pen. I will leave the marking scheme for other casters to develop for themselves.



Here is the top for the tank when using the vacuum. The hole is for seeing the resin as it bubbles so the vacuum can be cut off when the bubbling is too vigorous. The hole is covered with a sheet of Lexan glued to the corian top with epoxy. I drilled a hole in the corian and screwed in the pipe and epoxied it in place. The piping has a cut off, vacuum gauge and a pipe fitting to attach the vacuum hose. Each set up will probably be a little different so I'll not go into detail here. The plumbing set up is pretty straight forward.



The resin from [mrfiberglass](#) pours up light blue and turns green after the catalyst is added. Other supplier's resin did not do this. I was concerned the first time, but the resin cured crystal clear and has each time since. I am casting 14-16 oz. casts and using 3 drops of catalyst per ounce. The cure time is longer but not a problem. The amount of catalyst controls the heat needed for hardening and also controls the brittleness of the cured product. More catalyst produced more brittle resin. The resin is now poured into one glass jar, placed into the pressure paint tank and the vacuum pump hose is attached and the lid is put into place. The vacuum pump is started and the resin begins to bubble and I leave it until the bubbling stops, or almost stops. I leave the vacuum on for about 15 minutes. But remember, I'm using much less catalyst than called for and the resin does not begin to gel.





Just for reference, here is a picture of my pump and the gauge which is reading 23 or so inches of Hg. The next picture shows the pressure tank with the homemade lid for using the vacuum set-up.



Making the lid for the pressure tank to use with the vacuum pump proved challenging. I had used some gasket material but was tired of trying to keep it in place. Bob Keys (<http://www.ciwritning.com>) shared how to make a seal for the lid:

Turn the tank upside down on the corian lid, use a marker and draw around the tank. Run a bead of silicone around the lid on both sides of the blue line. Lay plastic wrap on top of the tank and sit the lid on the tank. The silicone will not stick to the plastic wrap. Allow the silicone to cure and voila, a seal to hold the vacuum.

Thanks Bob! Bob has posted a sierra made from a coral snake skin. A beautiful pen and an excellent cast.



Here is my Harbor Freight paint pressure tank which I use for both vacuum degassing of the resin and then pressurizing the casting to further help reduce the air bubbles.

The catalyst is added to the resin and placed in the tank. I use a homemade lid and a vacuum pump and degass the resin for about 15-20 minutes to suck out the air. I can do this because I use less catalyst than the recommended 6 drops per ounce. Six drops per ounce will cause the resin to jell quickly.



Resin in the molds with the pen tubes. This resin has been degassed and is ready to go into the tank with pressure. I degass in a jar inside the tank. Other methods are available. After degassing, the resin is poured into the mold and placed on the racks and placed inside the tank.

I **DO NOT** put the pen tubes in the vacuum. ...Just the resin in a jar. I don't think I want to suck the air from the tubes. I suspect it will travel through the corks. The process works well and I see no reason to put the tubes in the vacuum chamber.



Also pictured are the two racks I use so I can cast two molds full of tubes at once. The bottom of the tank is concave and I place a round plywood disk in the bottom. This holds one mold; the second mold is placed on the next layer. I use a top plywood disk to keep the air from the compressor from blowing out the resin, although it may not be needed.



Here is the rack system and the tank — side by side.



Racks and molds are in the tank. It is time for the lid and pressure.





The air hose is attached from the compressor to the tank. I set the pressure regulator on the compressor and leave the hose hooked up until the resin is cured. I had problems at first just pressurizing the tank and removing the hose. The pressure would leak down and air inside the tubes would get between the resin and skin and cause the skins to look silvery with lots of cruddy looking stuff. These castings were not useable. Leaving the hose attached and holding the pressure constant throughout the curing solved many problems I was having.

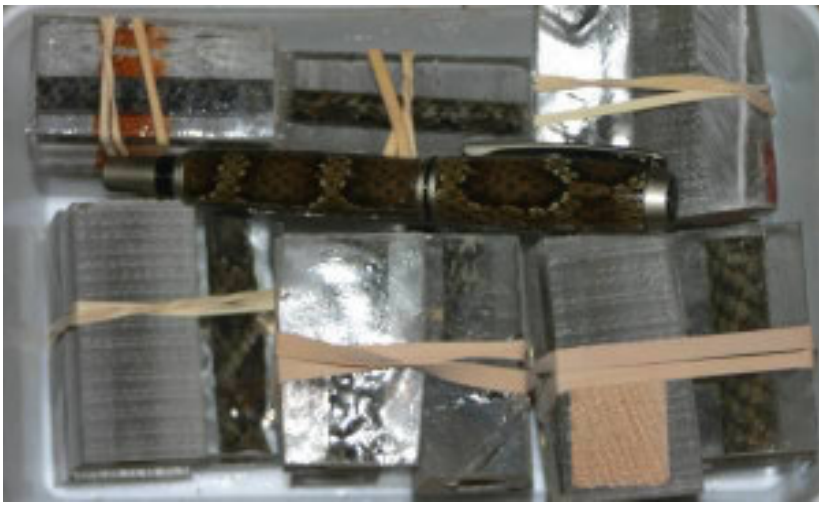


Before the vacuum step I was pressurizing the tank to 50 psi. Now that I degass the resin with vacuum, I've dropped the pressure back to 25-30 psi as indicated on the gauge in the next photo.



A finished cast ready to be cut apart, corks and BBs removed and turned into a great looking pen. I separate the tube/blanks with the bandsaw. The corks are not reusable. I do collect the BBs to reuse, except for the ones I spill on the floor. I recently found a large coffee can filled with small lead shot used for reloading shotgun shells at a garage sell and purchased it for just a couple of dollars. I've been using the lead shot in the last few casts. Jay Pickens uses metal rods cut into the proper lengths. Other things could be used to achieve the same results. I used small nails the first few times.





Blanks cut from the castings, standoffs, corks, BBs removed. Paired together and ready to turn. A finished baron is also included.

Better keep an eye on the pens...they may slither off if left alone.



Here are a few finished pens. I hope this tutorial will be helpful in learning to cast your own snake skin blanks. I hope the methods explained here will be improved upon and the better techniques shared with the rest of us. Enjoy and happy casting.



## Sources for the materials I use:

1. I spray paint the tubes with either flat black or a flat green used in camo. It came from Sutherlands Home Center but should be available from any store selling spray paint. Other paint types could be used. Magic marker and Sharpie type inks do not hold up well to the CA.
2. Corks are available from: <http://www.sunburstbottle.com> Navigate to accessories and click on "cork stoppers". I use sizes #00, #0, #1, #2, #3, and #4. These sizes have worked for kits from slimlines to the Gent.
3. I purchase snake skins from Steve Thompson at <http://sdsnake.com/SnDen.htm>, but Steve is selling his last skins and will not be selling skins after his supply is depleted. We need to be prowling the internet for find another source for rattle snake skins.
4. The BBs used for weights were from a sporting goods store. My Walmart did not carry BBs.
5. Pen kits and glue from your favorite supplier.

## Notes:

- A. I cut the slab into blanks with my bandsaw.
- B. I use an ice pick to pry out the cork on one end, empty the BBs and reuse them. Knock out the other cork with a punch or old mandrel.
- C. If you use a sander to get the blanks square or to reduce them to length, then I recommend using thin CA on the ends to keep the white dust from getting between the skin and the resin.
- D. My mold is a square cake pan from one of the dollar stores or molds can be ordered from sources available in the other PR casting articles.
- E. If the casting is dropped onto a concrete floor, you may need to start over...I know this from first hand knowledge. It is a sickening feeling to see the cracks spiderwebbing throughout the cast. Be careful.
- F. Pressure and vacuum can be omitted with good results. Others cast without either of these. Anthony Turchetta has an excellent article on PR casting in the library of the IAP at <http://www.penturners.org> . Other articles are available at <http://www.penmakersguild.com> and in the files of the Y! PPenturners Group at <http://www.groups.yahoo.com/group/penturners>
- G. Turn carefully taking light cuts as with any plastic or acrylic blank. Sand and polish with your favorite regiment. I sand 220, 320, 400, and MM to 6000. Then I buff with tripoli, white diamond and HUT Ultra Gloss Plastic Polish.
- H. An excellent suggestion was made by Janet Smith. She suggests working with wax paper on the work surface. CA glue will not stick to it and clean up is easier. I actually work on a 3 ft. square of corian and scrape off the glue after each session. But, I'm not allowed to work inside the house any longer because of CA glue on table tops. Thanks Janet for that suggestion.