

Preparing and Using Ground Pony Beads as a Replacement for Mineral Inlays

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Background

After unsuccessfully trying to use minerals for enhancements and filling voids, I started using ground pony beads as an alternative. Pony beads were chosen for several reasons. They are inexpensive and come in about 150 different colors. You can easily prepare them by grinding in a small coffee grinder or an inexpensive food processor. Best of all, they can be turned just like wood with any of your turning tools. Minerals, on the other hand, must be crushed with some difficulty, come in limited color choices, are expensive, and most will destroy your tools if you try to turn them.

Examples

Over a couple of years of using them, it became clear that there are many different applications for ground pony beads. They can be used for the obvious application of filling voids and worm holes, much like Inlance and turquoise. Alternatively, they can produce images cut into the surface of a turning with a burr (Figure 1). You can fill grooves turned in bowls (Figure 2), decorate pendants (Figure 3), cast pen blanks using Alumilite or epoxy (Figure 4), make rings (Figure 5) and decorate Christmas ornaments and boxes. Although the application details may vary slightly, the technique for each is basically the same.



Figure 1. Tree Image



Figure 2. Bowl with Filled Grooves



Figure 3. Decorated Pendant

Equipment/Materials Needed

Pony beads - They come in two sizes, 6X9 and 4X7 (width X diameter in mm) and can be purchased on-line and at any craft store. They come in transparent colors, opaque colors and pearlescent colors (Figure 6). You can also use solid plastic beads,



Figure 4. Cast Pen



Figure 5. Rings

however, the pony beads with a large center hole seem to grind much easier and faster. Pony beads typically are sold on-line in packs of 100 beads (about 25 grams) for about \$1.25, or 500 beads for about \$2.65. They can also be purchased in craft stores like Michaels or Hobby Lobby at slightly higher prices and fewer color choices.

Grinder - Beads can be ground in a small coffee grinder or a larger food processor (a 2 cup size with a sharp curved blade). It is unnecessary to buy an expensive grinder. Grinding the beads is pretty hard on a grinder, so purchasing an inexpensive machine that can easily be replaced may be the best choice. Not all grinders or food processors will effectively grind beads, so when you find a good one buy a couple.



Figure 6. Pony Beads

Sorting - After grinding the beads you should sort them into two or three groups based on size. I sort into three groups – coarse for larger areas for a crystalline look, medium for most applications and fine to fill in the space between the medium and coarse particles so there are no voids. As a general guideline, I try to keep the maximum particle size less than half of the smallest dimension I am filling. Sorting the bead particles can be done with cheap strainers of different sizes (Figure 7). Sorting is much easier using calibrated sieves (Figure 8) purchased on-line, although the sieve cost is about 4 – 5 times more expensive than a cheap strainer.



Figure 7. Cheap Strainers



Figure 8. Calibrated Sieves

Glue - The bead particles are generally applied in a recess or turned groove using thin CA glue. You can also use clear epoxy, but the wait for it to cure slows down your progress, and can't be used effectively when the bead inlay is on the outer circumference of a bowl or spindle.

Turning/Finishing - No special tools are needed to turn or sand the bead inlay and most any finish is compatible. However, before using a new finish I would try it on a small test piece to make sure the finish sticks and cures.

Grinding and Straining the Beads

When you grind the beads try small amounts first (1/4th of a 500 bead bag) until you see how well your specific grinder works. The longer you grind, the more fine particles you produce. Pulse the grinder and do not run it for longer than 5 seconds per pulse. Be careful of grinding too long, as it will melt the beads. Even with short grinding periods, over time you will see a buildup of bead material around the inside of the grinder that you can remove by scraping. After grinding for a total of about 20 - 30 seconds, you will have a distribution consisting of whole beads to a fine powder.

Dump the material into the coarsest strainer and shake until all the finer pieces go through into a collection container below. The hole size in the coarse strainer should retain any bead particles that still look like a part of a bead or larger. These are then put back into the grinder with additional new beads and reground. Particles that pass through the first strainer are poured into a second finer strainer. Anything that remains in the second strainer is saved as coarse particles. Whatever passes through is filtered by a third finer strainer. Particles retained in the third strainer are saved as medium and those that pass through are saved as fine.

If you use calibrated sieves, you just stack the three sieves with the coarsest on top going to the finest on bottom followed by the pan. Then just pour the ground beads in the top sieve, shake and the

particles will automatically distribute among the four containers, as long as you don't overload them with too much material. Remember that the particles retained in the top sieve go back in the grinder.

Take care in handling the fine particles, because static electricity will cause them to stick to everything they touch. They also can become airborne if you blow on them – also not good to breathe them. When you are done, clean up the grinder and filters with a shop vac and then an air hose so different colored particles don't carry over and mix with the next batch.

Cutting the Recess for the Bead Particles

Prepare a recess for the bead particles by turning with a parting tool or cutting with a rotary tool with a burr. Make the sides of the recess as vertical as possible so the dimensions will not change as you turn the bead particles flush with the surface. If you are cutting an accent ring, cut with a parting tool about 1/16" to 1/8" deep. If the bottom of the recess will be exposed by turning away the back side to expose the bead particles, such as in the rim of a platter or the side of a bowl (see Figure 2), you will have to cut the recess deeper so the bottom of the recess can be exposed before the turning gets too thin. Although it might seem that having both the top and bottom of the recess exposed would make the piece fragile, I have made three pieces this way and none have failed.

Applying the Bead Particles

IMPORTANT - Before applying the particles, seal the recess with shellac or CA. If you do not seal the recess, the CA will soak into the wood and not bond the particles to the wood, so when you turn the particles flush, they will break out in pieces. Try CA on a part of the wood that will be turned away to see if it will stain the wood deeply. Shallow stains can be turned or sanded away when you level the surface of the applied ground bead particles.

Stephen Hatcher suggested sealing the recess with black paint. This enhances the boundary between the inlay and the wood. Before spraying with the black paint from a spray can, I seal the entire face of the turning wherever the black spray will hit. This prevents the black paint from going into the wood grain, requiring you to sand or turn more aggressively.

If the back side of the recess will not be exposed later by turning, you can start filling the recess with larger particles, followed by finer particles as you get close to the top surface. If the back side is turned to expose the particles, start filling the recess with fine particles, then add the larger particles, topping off with fine. Gently patting the raised fine particles with your finger will push the fine particles into the spaces between the larger particles to prevent voids. Then apply thin CA by dropping it on the particles until the recess is saturated. This is easy to see as the CA makes the particles darker. If the recess is greater than 1/8" deep, fill it in multiple passes. If you apply CA to bead material greater than 1/8" thick the CA at the bottom may not cure, even when using accelerator. Until you gain some experience with applying the particles, voids can be a problem. Preventing voids is a learned technique, so practice on a test piece until you become proficient. You can always fill a void with more CA, either thin or thick, depending on the void size. However, if the void is large, it will produce a clear area with no particles, which is not attractive. It is better to add more fine ground bead particles, then apply thin CA.

As you fill the recess and apply CA, you must mist the CA with accelerator. Slight foaming or bubbles are OK, since this can add visual interest.

Turning the Bead Particles

To turn the bead particles, use any turning tool and make a finish cut to level the particles with the wood surface. On the first cut you can scrape, but may find that this will pull or chip out larger particles leaving a surface void that will have to be filled. I have had better results with a very fine bevel rubbing cut started just before the recess, which seems less likely to break out particles that are proud of the surface. After the initial leveling cut, scraping works well. Be careful of accidentally touching the proud particle surface with your hand while the piece is turning. Before turning, the proud particles are like a very coarse burr and will cut you very easily.

Finishing the Piece

I have not had any problems with finishes on the CA/particle surface, although I often use a CA finish on smaller pieces. I have also had good results using water based urethanes and oil based wipe on poly finishes. For a high gloss finish, I apply several coats of finish and sand gently by hand with the finest grade of sandpaper that removes the dust nits and produces a uniformly frosty finish. I then use finer grade sandpaper up through 4000 grit and burnish with brown paper bag. Be careful that you do not sand through the finish. If you want a higher gloss, finish buff with white diamond.

Selecting Bead Colors

You can simulate lapis using a mixture of blue transparent or opaque mixed with a small amount of blue pearlescent and by randomly adding a few white or black particles. Turquoise colored particles look more natural if a small amount of fine black is added randomly to simulate natural variations rather than having a single, uniform color. Black and purple produce an interesting granite appearance. Accent bands in platter rims and box tops look nice as a black band flanked by two smaller clear or white bands or vice versa. An irregular joint between a box top and an inserted wooden accent can be made uniform by cutting a ring that goes into both parts and fill it with fine black particles. Larger areas of a single color look more realistic by mixing small amounts of another slightly different color, again to simulate natural variations. Images can be created by applying realistic colors for each part of the image. The tree platters that Stephen Hatcher does are an outstanding example. By applying all the different colors before adding the CA, you can determine if you like it. If you don't like it, dump it out and start over. Worst case you have wasted a few minutes of your time and a couple of cents worth of ground beads.

Links to Vendors

Pony beads – www.ponybeadstore.com. Be sure and write the bead part number on the bag of beads. Because there are so many colors, this will make it easier to purchase replacement beads in the future.

Grinder - KRUPS F203 Electric Spice and Coffee Grinder with Stainless Steel Blades - https://www.amazon.com/KRUPS-Electric-Grinder-Stainless-3-Ounce/dp/B00004SPEU/ref=sr_1_4?s=kitchen&ie=UTF8&qid=1466173352&sr=1-4&keywords=coffee+grinder.

This grinder seems to grind beads reliably for me. However, I found that the beads broke out the bottom edge of the plastic top on the Krups unit. I tried coating the inside with a layer of epoxy, but it did not stick. I got the best results by putting a couple of layers of thick clear packing tape or duct tape around the inside as small pieces that overlapped so that the leading edge was covered by the trailing edge of

the prior piece of tape (apply the tape in the opposite direction of the blade rotation). Otherwise the leading edge of the tape will peel up when it the beads circulate around the container.

Small food processors can also be used, although I have seen one food processor that looked similar to the one successfully used, but for some reason it absolutely would not grind beads. So, try a cheap one and if it works buy a couple more for future use. Grinding plastic beads is pretty tough on the processor or coffee grinder, so having a replacement is worthwhile.

Alumilite/Epoxy – Alumilite can be purchased from turntex.com. Smooth-On Epoxacast 690 from smooth-on.com or amazon.com. Actually most any clear epoxy will work.

Cheap strainers – Search Walmart for strainers. Tea strainers for fine and sink strainers or anything else you can find for medium and coarse. Just remember that the holes in the first strainer must be small enough to stop any particles that look like a whole or partial beads.

Calibrated sieves – They can be purchased from www.affordablesieves.com/3-inch-sieves/. The three sizes I use are #8, #12 and #20. I also purchased a bottom pan. All the parts are 3” diameter, full height with a skirt so they stack. This will cost about \$100 for the set.

This is a very easy and inexpensive technique to try, so see what you can do with it.