

Preparing and Using Ground Pony Beads as 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. 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 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 Inlaid and turquoise, but are cheaper and can be turned. Alternatively, you can produce images cut into the surface of a turning with a carbide 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. 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 is the best choice. Food processors and blenders will not effectively grind beads, so stay with the coffee grinder.

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. When applying them, I keep the maximum particle size less than 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. Links to vendors are at the end of this document.



Figure 6. Pony Beads



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 like Figure 2.

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.

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, clear or black particles. Turquoise colored particles look more natural if a small amount of 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 or colored 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.

Grinding and Separating the Beads

When you grind the beads try small amounts first (1/4th of a 100 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 without pausing, 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. You can minimize this by waxing the inside of the grinder so they will not stick. After grinding for a total of about 20 - 30 seconds, you will have a distribution consisting of whole beads, partial beads and coarse to 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 be small enough to retain any unground beads or 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. Bag and label each in plastic Ziploc bags.

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. This can be minimized by spraying the sieves or strainers with a fabric anti-static spray. Just spray lightly and wipe dry. When you are done, clean up the grinder and filters with a shop vacuum 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

Turn the piece to the final shape before cutting a recess. You do not want to turn away the beads by revising the shape after bead application. Make a recess for the bead particles by turning with a parting tool or cutting with a rotary tool using a carbide burr. If you are cutting an accent ring, cut with a parting tool about 1/16" deep. If you want the bottom of the recess to be exposed by turning away the back side and exposing the bead particles, such as in 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 the ground beads exposed on both sides would make the piece fragile or crack from wood movement, I have made three pieces this way and none have failed, even years later.

Applying the Ground Beads

IMPORTANT - Before applying the particles, seal the recess with shellac, CA or sanding sealer. 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 large chunks. If you use CA, first try it 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, which enhances the boundary between the inlay and the wood or different colored inlays. Before spraying with the black paint from a spray can, I seal the 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 to remove it and allows you to wipe most of the black paint off while it is still wet.

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 closer to the top surface. If the back side is turned to expose the particle inlay, start filling the recess with fine particles, then add the larger particles, again filling in the spaces between the larger particles with fine. Gently patting the fine particles with your finger will push them into the spaces between the larger particles to prevent voids. Then apply just enough thin CA until the particles in the recess are glued in place and spray with accelerator. This is easy to see as the CA makes the particles darker. Do not flood the particles with CA at this point. 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 though the top is cured. As a final pass, I add fine until it is proud of the surface and apply thin CA until the surface is "wet" and then cure with 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, which will wick down into the void.

As you fill the recess and apply CA, you must mist each layer of the CA with accelerator. Slight foaming is OK, since this can add visual interest.

I always add a few particles of a secondary, contrasting color (black to turquoise, clear or pearlescent to blue to produce a lapis look, etc.). I apply the secondary color at the same time as the primary color and do not mix them before applying. Applying the secondary color is an opportunity to exercise your artistic talents.

You may want to try UV cured epoxy and cure it in the sun, although this will only work for flat surfaces.

It is best to try a few practice pieces before doing a "keeper". Applying the beads is not difficult, but there are some learned techniques that will help prevent voids and bubbles. Although these can easily be fixed, good technique can prevent most of them and eliminate the time needed to fix them. The test piece will also guide you on color and amount of the secondary color.

Casting Ground Beads

If you want to cast ground beads, grind them as usual, but do not separate them into different sizes. Just make sure to use the first strainer to separate out the unground partial and full beads. Use all the ground beads that pass through the first strainer and add them to the well mixed binding agent in a one to one ration by volume. Stir until all the ground beads are well mixed with the binder and then cast them like a normal pen blank. I have successfully used both clear Alumilite and clear epoxy as a binder. Although I started pressure casting to eliminate bubbles, I found that was not necessary. It seems that a binder that is highly filled with the ground beads and well mixed eliminated the bubbles.

Turning the Bead Particles

To turn the bead particles, use any sharp turning tool to level the particles with the wood surface. **Be careful of accidentally touching the proud particle surface while the piece is turning – it is like a 10 grit sandpaper and will cut you very easily.** 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 bevel rubbing push 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, shear scraping works well.

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.

Summary

The uses for ground pony beads is limited only by your creativity and imagination. The cost to try it is less than \$35 (\$20 for the grinder, \$10 for the Walmart strainers and \$5 for some pony beads). Whether you are filling worm holes or decorating a turning, it will open up a lot of new opportunities.

Links to Vendors (These links were correct as of 5/15/21, but may become outdated)

Pony beads – www.ponybeadstore.com. They have a huge inventory of pony beads of all colors and types (clear, opaque and pearlescent) and tend to be cheaper than the local craft store. 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 that you like. I made the mistake not doing this and when I went to reorder turquoise, I found that there were about seven different bead colors with that name.

Grinders – There are several options, almost all of which are pretty low cost. So, try a cheap one and if it works, buy a couple more for future use. Grinding plastic beads is pretty tough on the grinder, so having a replacement is worthwhile. I have found that grinders with a sharp blade work much better than one with a blunt blade. **In all cases, be sure to unplug the grinder when the top is removed.**

Almost all the coffee/spice grinder that I have tried grind reasonably well, although some better than others. I have tried three different blenders, all with no success. The small food processors (about one cup size) have mixed results. I started with a My Butler Food Processor and it worked better than any other grinder I have tried. Unfortunately, it is no longer available. I purchased several other one cup food processors that look identical, but a couple grind very poorly and the rest not at all. I have not been able to determine what makes a good one or a bad one for grinding beads, and have had no luck finding a replacement for the My Butler. Best bet is to stick with a spice/coffee grinder. Below is the one I recommend.

Black & Decker Smartgrind Coffee Grinder, Stainless Steel, CBG100S about \$19 on Amazon at the time this document was prepared <https://www.amazon.com/BLACK-DECKER-Smartgrind-Stainless->

[CBG100S/dp/B000BHIQPI](#) . This grinder grinds beads reliably for me and seems to hold up to the rigors of grinding beads, which it was not really designed to do.

Alumilite/Epoxy – Alumilite can be purchased from <https://www.turntex.com/product/casting-with-alumilite>. Most any clear epoxy will also 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 (the coarsest) must be small enough to stop any particles that look like a whole or partial beads, typically 1/8” diameter or less.

Calibrated sieves – They can be purchased online. Search Amazon or try this link - https://www.amazon.com/KimLab-Economy-Stainless-Plating-Diameter/dp/B07KXXTP7V/ref=zg_bs_393335011_18/130-1789278-0535901?_encoding=UTF8&refRID=NQ71S1B8ZNIJ37ZPGEK8&th=1. 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 - \$150 for the set. It is more expensive, but well worth the cost if you are going to do much bead separation.