# Tumbling Tutorial for Polymer Clay Jewelry



By Ken Epperly & Bella Giovanni

### Prologue



Ken: I was introduced to polymer clay in the year 2000. I was on a cruise on the inside passage of Alaska. We stopped in Juneau, and it turned out to be an unusually warm day. We visited many stores and gift shops, and I was intrigued by the artwork of Jon Stewart Anderson. One of the gift shops had a showcase full of his unusual reptiles and animals. The intricate patterns were like nothing I had ever seen before. Luckily, the owner of the

shop knew more about Jon, and basically the techniques he used with his artwork. She knew the patterns were not painted, but were created entirely from polymer clay. I purchased a turtle for myself, and a frog for a friend that collects frogs. That turtle sits on a side table, in my living room, and I have looked at it and shown it to visitors for many years. I thought, someday when I retire, I will buy some polymer clay and just play with it.

Fast forward. I retired in 2016, and started seeing posts on Facebook that my sister-in-law, Paula Epperly, posted. She had made her first "cane." I had no idea what

she was talking about. My first thought was a walking cane. I thought perhaps she was painting walking canes. She's done artwork of every kind since the day I met her. I saw another post, and another post, and they grabbed my attention, and I realized she was talking about polymer clay canes. I had lost contact with her, and sent her a message about the clay. The rest is history. We started chatting about the clay and what she was doing with it. I told her about the turtle I bought on my cruise and how much I have always cherished it. Of course she encouraged me to give it a try. I drove to A.C. Moore, and looked at the clay, and almost walked out empty-handed. At the last minute, something told me to go ahead and buy some clay. So I not only bought clay, but I bought a few books, and a pasta machine, a clay oven, some clay cutters, and headed home. Paula shipped me 10-20 packs of Premo and Souffle, her clays of choice. She included blades, and an assortment of the caning tools from Teresa Salgado's online shop, Tiny Pandora. www.tinypandora.com



I read my books, and watched Teresa Salgado's tutorials on YouTube, and on January 3rd, 2017, I touched the clay for the first time. I was hooked. I was so amazed by the clay itself, and the things you could do with it! I found myself experimenting, and creating, trying all of the techniques I would see in the tutorials and the basic methods I read about in my books. In July, I did my first craft show. I had a tent and two small tables. I did two shows that year. In 2018, I did 11 shows, and in 2019, I did a total of 23 shows and events. Some were only four hours long, others were four days long. I love

doing the shows, and love demonstrating how I make my jewelry at the shows. But most of all, I love working with polymer clay. I specifically fell in love with caning. For 36 years I had owned a costume shop, and made theatrical costumes and masquerade costumes. My specialty was making animal mascots. I think 36 years of drafting patterns, choosing colors of fabric and trims, and sewing and hot glue guns helped me when I transitioned into the medium of polymer clay.



In addition, my parents had two kilns and dabbled in ceramics and pottery. When I was a teenager, I played with their clay, and molds, and slip, and glazes, so clay came sort of naturally to me. But it had been years since I had worked with the earthen clay. I think I have finally found my calling. I believe I will be working with polymer clay for many years to come.

I am so grateful for all of the artists and all the members of the many PC Facebook pages that I belong to, who are willing to share their ideas and techniques. For this reason, I decided to make this-- my first tutorial-- *free* to anyone that wants it. This is my way of saying "thank you" to the polymer clay community.

Ken

# **Discovering Tumbling**

Before tumbling, I hand-sanded every piece of jewelry five times by hand. I used 220,

400, 600, 800, and finally 1000 grit wet/dry sandpaper. I purchased some of my paper at the hardware store, and the finer grits at an automotive supply store. I cut my paper into squares about the size of a postage stamp. I sanded in a pan of water, with a few drops of dishwashing liquid. I believe the soap kept my paper from clogging with clay dust, and prevented that from scratching the jewelry. I spent hours upon hours hand sanding. I really did not mind it,



but my volume of creations was very dependent on the slow process of hand sanding. I actually spent more time sanding than I did creating my jewelry.

I was at a show when a gentleman walked into my booth. He introduced himself and told me he owned a jewelry store. I explained my process and told him about the hand-sanding. Many customers would ask me how I get my pieces to look so shiny. They assume they were glazed, but I explain how they are actually hand-sanded and then each piece is buffed on a jeweler's wheel to give them that great permanent shine. The jewelry store owner asked me if I had ever considered using a rock tumbler, instead of sanding by hand. I said no, it never occured to me, and explained how my clay is actually a form of PVC plastic. He assured me he thought it would work. He used tumblers in his business to clean jewelry. He said almost anything that can be hand sanded can be polished in a tumbler. We talked a while and that was about the end of the conversation. Well, his suggestion really resonated in my mind. Within a few weeks I ordered my rock tumbler and started the whole experiment. I thought if I could just make this work, it would save me hours of time in labor and increase my volume of finished product. It would also do my hands a favor. I would wake up in the mornings and it hurt to even pick up a coffee cup. My poor fingers would not even bend until I ran them under hot water. What a huge difference it would make if I could just find an acceptable alternative to sanding. I set up at 23 events in 2019, and sold well over a thousand pieces of my jewelry. If you consider that earrings are sold as a pair, they're actually two pieces of clay that had to sanded and buffed. Each and every one was hand-sanded five times, and then buffed on my power wheel. Can you imagine the hours I spent sanding and buffing when I could have been spending my time creating? With this knowledge, I could increase the volume of jewelry I produced by ten-fold.

I read about different brands of rock tumblers. I heard great things about several brands, and decided to purchase a Lortone brand Tumbler. I ordered it from Amazon.com. So I can't say I have experimented with different brands but I did read some of the rubber tumblers on the bargain brands are not a high quality rubber barrel. Some do not use a high quality rubber when they manufacture the barrels, or use a combination of vinyl and rubber in their barrel. Some use plastic barrels. I read that plastic barrels can be very

noisy. I'm really not sure if that even makes a difference in the results you will get with your finished clay. But users of the Lortone brand had bragged their machines run nonstop for years and are still running as good as the day they bought them. I'll leave the brand up to you. I am sure there are lots of quality machines on the market-- I just chose the Lortone to start. I bought a six pound, double barrel machine. Each barrel is considered a three pound barrel, but rocks are much heavier than clay.

I used a rotary style rock tumbler. The other choice is a vibratory tumbler. They vibrate, rather than roll. You will learn more about the differences with vibratory tumblers in the second half of this tutorial.

# Choosing Tumbler Media



Tumbling media refers to a filler used in the tumbling process. For years, many avid rock tumblers (lapidarists) simply used smaller rocks as filler. The smaller rocks served as the filler media, along with the different grits.

My first experiment involved the pyramid-shaped tumbling media, which is actually the media and the grit combined. The pyramids have the grit built right in and are reusable. They come in coarse, medium and fine. Each is a different color, so that you can keep them separate and easily identify the grit by the color of the plastic pyramids. These are readily available from most rock tumbling sites. I ordered mine from the jewelry supply company Otto Frei at www.ottofrei.com. Keep in mind they are a jewelry site, not a rock tumbling site.



Pyramids. The pyramids are actually a filler and grit, all in one. The grit is part of the plastic pyramid. They may work well on round beads, but did not produce the finish I was looking for on my flat pieces.

I learned a lot of information from a tutorial by Cindi Leitz of Polymer Clay Tutor. It's on YouTube and is definitely worth watching. She seemed to have great success with the pyramid media when tumbling round beads.

I tried the pyramids, tumbled my flat clay pieces for one day, and then two days, then three days, etc. I was never able to get the results I was looking for on the flat surfaces of my pendants. For round beads, they may be a great choice but for my purpose, they were not exactly what I needed.

I eventually tried regular rock tumbling grit in addition to the pyramids, and that helped. But I was afraid they were working against each other, rather than in tandem with each other. So I did more research.

I started researching rock tumbling sites, and watching rock tumbling tutorials on YouTube. I learned a lot about how to tumble rocks, and some of it applies to tumbling polymer clay.

I found a website called rocktumbler.com where I discovered a rock tumbling media made from ceramic pellets. This site sells bags of ceramic pellets in both the large size and the small size, and suggests you use a combination of both. But again, they are talking about tumbling ROCKS.

Ceramic pellets. These are used as a filler, when tumbling rocks.



As I was still in the experimental stage, I decided to try those. Tumbling media, such as these ceramic pellets, do nothing for cutting or grinding. They are strictly filler. They help distribute the grit, and help it get into tiny places the grit might miss. They help the items tumble better, and keep the rocks or clay from bruising each other.

I tried the ceramic pellets, and coarse grit, then medium grit, then fine grit. The great thing about ceramic pellets is that they are reusable and rinse totally clean. They do, however, wear down from the wear and tear. The large pellets eventually become small, and the small pellets eventually grind away to almost nothing.

# I had some success using the ceramic pellets, but still not 100% of what I was looking for.

I also tried the porcelain beads, using the super fine grit they call polish. That left a black film on my polymer clay jewelry. At that time I was using a few drops of Dawn dishwashing liquid in the mix, and I worried it was the Dawn reacting with the rubber barrel. I later found this was not the problem.

This will all become very clear when I get to the method that worked the best for me.



Porcelain beads. I attempted to use these with the ultra fine grit called polish. It left my jewelry with a greyish-black film on the pieces. I was not sure if it was the beads or the grit, or the soap I was using. I later discovered the super fine grit was the cause. It is too fine for polymer clay.

# Finding the Perfect Media

I purchased the ceramic pellets and the grit from rocktumbler.com. The grit had a manufacturer's label on the bags from Minnesota Lapidary Supply (MLS), located in Princeton, Minnesota.

I decided to give them a call and ask if they had any experience in tumbling plastic. I had seen videos of manufacturers tumbling or vibrating small plastic parts to remove the flash from the molds that they use to manufacture the parts.

Luckily, the owner named Val answered my call. He was shoveling snow when I called! I could not believe it, but he had experience in tumbling plastics. His main business is tumbling rocks but he had a great sense of what I needed to successfully tumble polymer clay jewelry.

He suggested I stop using the pyramids, stop using the ceramic pellets, and start using plastic beads as my media. He told me I want the media to be basically the same weight as the items I am tumbling.



Plastic beads are more similar to the plastic polymer clay items I was trying to polish.

Plastic beads: Used as a media for tumbling. This seemed to work best with my polymer clay.

After all, these pellets are plastic, and so is polymer clay. They are nearly identical in weight and texture. These pellets help deliver the grit to the surfaces on the clay pieces and cushion the pieces while they are tumbling.

Grit is what actually does the sanding of the items in the barrel, not the pellets. Think of grit as sandpaper without the paper. It comes in Coarse, Medium, Fine, and "polish" or Ultra Fine. Basically all you need to use in a rotary tumbler is Coarse, Medium, and Fine grit. Do not use ultra fine grit (often called polish). When I used the porcelain beads and

polish, a black film was left on my polymer clay jewelry. Val told me not to use the ultra fine polishing grit. He believed that is what was turning my items black, not the rubber in the barrel. That grit was so fine, it would get into the pores of the clay. Luckily, the items that turned greyish-black were easily restored by running them in the regular fine grit overnight.

When tumbling in a rotary tumbler, all you need to use are the first three grits.

I use Coarse grit, for two days, or 48 hours. I use Medium grit for two days (another 48 hours). Then I use the Fine grit for two days (the final 48 hours). Then my clay items are ready to buff on my power wheel.



You can buy the grit in one pound bags, or you can buy them in five pound bags. You may want to start small until you find out whether tumbling gives you the finish you like. After I found tumbling was doing exactly what I wanted it to do, I bought a five pound bag of each grit. A five pound bag will fill a standard coffee can. Being a coffee drinker, that is what I store my grit in -plastic coffee containers.

I have no idea if there is a difference in the quality of grit. The grit I buy from rocktumbler.com works great. It is manufactured by MLS, Minnesota Lapidary Supply. I assume it is a highly professional quality grit.

I tried tumbling one day, two days, three days, and four days. Two days seems to be just about right for each level of grit. I lost too much clay when I tumbled any longer than two days. The pendants were noticeably smaller. Pendants with flower and butterfly cane slices were ruined. The images were totally sanded off the surface of the pendants.

I have also read that you can tumble clay in chopped up denim to polish the final product. I tried that, but found my denim all tended to gravitate around the outside of the barrel. The pieces did start to show a "sheen", but for me it was not a "shine." If you attempt this, I suggest white denim or white flannel.

# The Final Piece

In my opinion, power buffing is the final piece to achieving that shine. A power buffer creates heat and removes clay from your piece.



I plan to continue power buffing. Like anything else, there is a learning curve when it comes to buffing your jewelry, and you can benefit by looking at tutorials specifically about buffing.



Super soft flannel wheel: Used to power buff. It will not burn or scar your clay. You can buff very aggraessively, unlike the muslin wheels that came with my buffer. A flannel wheel is your very best choice.





In my opinion, a buffing machine is worth the investment and time to properly learn to use it. Machine buffing creates a lot of clay dust. You should always wear a mask certified to protect against dust while buffing. You do not want to breathe in polymer dust particles.



You should also always wear safety goggles to protect your eyes from particles. If you have long hair, be sure to securely tie it back out of reach of the machine. You should also follow all the other basic safety rules of using power tools such as buffers or grinders.

You can review these safety rules at this OSHA site here <u>https://www.ccohs.ca/oshanswers/safety\_haz/abrasive\_wheels/safeuse2.html</u>

and this technology student site here <u>http://www.technologystudent.com/health1/buff2.htm</u>

### And read about dust masks here

https://ohsonline.com/Articles/2015/11/01/Clearing-the-Air-About-Disposable-Dust-Mas ks.aspx?Page=1 Note: At the time of this writing, N95 masks are needed by healthcare workers to protect them against the coronavirus. You can make a comparable dust mask from blue shop towels as seen in this video: https://www.youtube.com/watch?v=edOAHCRTIVO

I chose to include all the things related to how I learned to tumble my clay. I thought it would be educational to include them all. That way you know what I tried. You know what I discovered, and just in case you decide to try them, you know I have already tried

them too and know my results. I experimented for at least four months. I used different media, used grit with the pyramids, tried the ceramic pellets and the porcelain balls. After speaking to Val at MLS, I decided to take his expert advice and use the plastic pellets exclusively. My best results came from using the plastic pellets with the standard rock tumbling grit.

# A Few Details

A word about plastic pellets. First of all, they are about the size of typical BB's, or a slight bit smaller. They are light and float. They can be reused, but only with the grit you use them with the first time. The grit can become embedded into the plastic pellets which is why you need to keep them separated by grit level.

In other words, the plastic pellets you use with the coarse grit should forever be used with coarse grit only.

The plastic pellets you use with the medium grit should forever be used with the medium grit only.

The plastic pellets you use with the fine grit should forever be used with the fine grit.



I use aluminum baking pans to dump the plastic pellets into. I like to let them dry if I am not going to use them again immediately. I don't want to store them wet. The pan is a convenient container to dump the plastic beads into and allow them to dry. You can store them in jars, storage containers, or plastic storage bags.



Soap: From Otto Frei but all lapidary supply companies should carry powdered soap, also called burnishing powder.

Burnishing powder is used as the last step, or as an extra step on rocks to clean and put a final shine on them. My rock tumbler instructions stated: "USE ONLY POWDERED SOAP, DO NOT USE ANY LIQUID SOAP IN THE RUBBER BARREL."

Most liquid soaps have additives. Some liquid soap may be petroleum-based, and petroleum-based additives will deteriorate the rubber in the barrel.

One suggestion is to grind up a bar of original *Ivory* soap. I read some tumblers actually use *Tide* or *Dreft*. I bought the #750 powder, but may try other powdered soaps in the future. Do not use any soap that foams up, or you can potentially blow the lid off your barrel!

# Step by Step Pictorial: Barrel Tumbler and Polymer Clay Jewelry

Getting Ready to Tumble:



1. First you want to add your polymer clay pieces to the barrel. The ideal amount should fill the barrel 1/3 full. Your pieces should fill the bottom 1/3 of your barrel.

I have added as much as 1/2, but most tutorials on rock tumbling suggest you only fill the barrel 1/3 full of the items you plan to tumble. Val agreed.





2. Next you fill the barrel 1/3 full of the tumbling medium. I choose to use plastic pellets as my tumbling medium. I add a small amount, and shake or tap the barrel to help them fill the space between my polymer clay jewelry pieces, then gradually add more until I reach the desired level, which is 2/3 of the barrel. (1/3 jewelry + 1/3 plastic pellets.)

Start by filling the barrel 1/3 full of your jewelry.

Stop, and tap the barrel to settle the beads into the empty spaces between the jewelry.

Continue filling the barrel, until it is 2/3 full.



3. Next you slowly add water until you almost cover the contents of the barrel. This is tricky, because the plastic beads float. So you have to watch carefully, until you can see when the water is just barely to the top of the contents, but not totally covering them. Too little water slows the process, as does too much. You want your contents to be like a thick milkshake. You are creating a thick slurry.



Pour the water in slowly.

Stop when you see the water has reached the top, but has not totally covered the contents.



- 4. I add four level tablespoons of the grit.
- 5. Next I add about one-two teaspoons of your burnishing powder (powdered soap).



This step is optional, but I find the plastic pellets will rinse clean if I add the soap to the mix.. You can grind up a bar of original Ivory Soap in place of the powder. Do not use liquid soap, nor any soap that creates foam or suds.



6. Place the rubber lid on the barrel, and make sure it sits well into the lip of the barrel to get a good seal.



7. Place the aluminum lid onto the barrel and press it into place. Make sure it fits well.





8. Add the washer and the nut onto the screw, and turn it until it is snug. I find about eight turns works well. DO NOT OVERTIGHTEN THE NUT. The instructions say you can damage or warp the lid if you overtighten it. It is fairly easy to tell when you have a snug fit.

9. I use a Sharpie to write the day and the level/number of grit used on the aluminum lid. Otherwise you may forget exactly what day you started tumbling this barrel or the level of the grit you used.



Rubbing alcohol will easily clean off the marker so you can write a new date.





10. I shake the contents to mix it well, and place it on the tumbler. My tumbler has tiny plastic washers to keep the lid from scraping the side. Therefore I always place the metal lid toward those washers.

Using both barrels, I place them opposite each other-- the bottom of the first barrel against the bottom of the second barrel. The tumbler should be used on a very level surface. I tumble each grit for two days or 48 hours.



### After Tumbling:

Once your first batch has tumbled 48 hours, you will need to rinse the grit and soap off of the jewelry and the pellets and prepare for the next step. If you purchase a single barrel unit, you will only be doing one step at a time. I have a double barrel, so I can tumble two grits, or two steps at one time.

# **NEVER** RINSE THE GRIT DOWN ANY DRAIN OR TOILET. THE GRIT WILL HARDEN LIKE CONCRETE AND RUIN YOUR PLUMBING.

I use a bucket and a wire strainer, and perform this step in my bathtub. If you are



fortunate to have a utility sink in your home use that instead. Try not to spill the grit. Keep it in the bucket whenever possible.



1. Remove the nut and washer. Then use the washer to break the seal on the aluminum lid. Remove the aluminum lid and set those parts aside.

2. Pry the lip of the barrel away from the rubber inner lid and remove the lid.







Rinse the lid over the bucket.

3. Dump the contents of the barrel into the wire strainer as it rests on the bucket. Rinse the barrel and dump that water through the contents of the wire strainer. Most of the pendants fall right out but there may be more pendants stuck to the bottom of the barrel; that is why I dump the contents into the strainer, and not directly into the bucket. In the first very few minutes that your barrel sits upright, the pendants start to stick to the bottom of the barrel. Look to make sure your barrel is empty.



4. Once the barrel is fairly clean, set it aside and rinse the contents of the wire strainer, catching all of the dirty water in the bucket. I use my hand to stir the contents of the wire strainer as the water pours through it.



Rinse it as clean as you possibly can. Do not let the bucket overflow. After I feel it is 99% free of grit, I remove the bucket and continue rinsing the pellets and jewelry. But only after it is very, very clean. You don't want to be rinsing any grit down the drain.





### DO NOT ALLOW GRIT TO ENTER YOUR DRAIN.

6. Place a small hand towel on the floor, and one by one or a few at a time, pick up the jewelry and rinse the plastic pellets off. Then drop the jewelry onto the towel. The plastic pellets are so light they will stick to your hands and to the jewelry. I rinse them off for that



reason. I only want jewelry on the dry towel. I want to keep all of the plastic pellets in the strainer.

7. Once the pellets are free of any jewelry, I dump them into an aluminum pan to dry.



A. Plastic pellets rinsed clean.



B. Dump them into your pan. Tap the strainer to release them.



C. Allow them to dry or use them again, if needed.

### The Next Grit:

Now this batch of jewelry is ready to be placed back into a CLEAN barrel to be tumbled with the next finer grit. Repeat the steps exactly as before. Add the jewelry, and then add the next set of plastic pellets (don't use the same pellets as before-- they are "contaminated" and can only be used with the same grit every time). Next, add water, followed by the appropriate grit. In this case it's time for the medium grit.



Last, add the powdered soap. Fasten both lids, shake the contents, and tumble the barrels another 48 hours.

9. Repeat the above steps with the fine grit, tumbling for 48 hours.

10. After six days, your jewelry should be ready for buffing.

There may never be an exact substitute for hand sanding and hand buffing, but in my opinion, this tumbling process comes very close. I have trusted friends that tell me the results look more professional than my hand sanded pieces. I will still hand-sand things like my Christmas ornaments or my animals I cover in clay. For small items like pendants and earrings, I may never need to hand-sand them again.

Tumbling will create a very smooth, rounded edge on the flat beads. There is no need to "dome" the pieces before baking. The tumbler will do that for you. I think that may be part of the reason my friends think the results look better than my hand sanded pieces. All the sharp edges are removed during the tumbling process.

I experimented by running dozens of batches of polymer clay jewelry in my tumbler. It took four months of trial and error to find what worked best for me. Some batches were just acceptable. Others were ruined and had to be thrown away. Finally, I believe I have struck upon a method that can be duplicated with results very close to hand-sanding. My tumbler ran 24 hours a day, seven days a week for over four months.

# Types of Clay

I primarily buy and use brand-new Premo polymer clay. In my stash, I have just about every brand for a simple reason. In the past, I have had old dry clay given to me, and I am even willing to buy very old, very dry clay from artists and crafters. I don't mind conditioning old dry clay. I place mine in a heavy duty plastic bag, and beat it with a rubber hammer until it is flat. I rub clay softener on the surface of the clay, fold it over, pound it again, and repeat that several times. Now it is ready for the pasta machine, and will not crumble. The people that sell me their old clay just don't like to condition old clay, or think it's not worth their time to condition it. That is up to you. To me, it's just part of the process. I first heard about this technique on the *HOP! Hooked on Polymer* Facebook page. I really appreciate that tip!

At one of my shows, I created a cane and mixed Premo, Kato, and Fimo. Normally it is not a good thing to mix different brands of clay in one cane. Each clay has a different hardness to them. They may reduce at a different rate. When doing a cane--for example a butterfly cane or any picture cane-- distortion can ruin the cane. Most of my canes are

abstract, and more forgiving once they are reduced. With an abstract cane, you really don't notice the distortion.

When I tumbled jewelry using those three combined brands of clay in that particular cane, an interesting thing happened. The grit grinds them at different rates. The grit grinds the softer clay faster than the harder clay. It turned out fine, it buffed fine, and it looks nice and shiny, but you can feel the pattern when you touch the jewelry. It almost looks a little like filigree. Hand sanding does not create that effect, because you are applying pressure as you sand, and the pendant is totally smooth.

# Powdered Soap or Burnishing Powder

In the tutorial, you remember I talked about why I use powdered soap when I tumble each load in the rotary tumbler. In the photo above, I compared plastic beads that had no soap used (top) against a set of plastic beads that I had used with soap (bottom). The beads come out cleaner, so I assume my pendants come out cleaner. The beads without soap (top) are clearly more grey. For this reason, I choose to use soap in all three steps.

### <u>Resources</u>

### RockTumbler.com

I use this website to purchase my grit. I am sure they have everything you need.

The grit they sell is manufactured by MLS, Minnesota Lapidary Supply.

### Amazon.com

I am an avid fan of Amazon.com. I am a Prime member, and get free two-day shipping on almost everything I buy.

I bought my Lortone model 33b rock tumbler from Amazon. I buy my plastic pellets from Amazon. It's mainly a convenience issue. Shop around for the best price, you may find a better deal. For example, when I bought my Dremel Drill Press, our local Lowe's home building supply store had it in stock for nearly \$20.00 less than Amazon. Sometimes it pays to shop around!







# About Vibratory Tumblers

Bella: As a polymer clay artist, I enjoy learning from and sharing notes with other artists. Ken Epperly had posted some interesting stuff about using a tumbler to polish his polymer



clay pieces through the Facebook groups. I contacted Ken and we started working together on this project. I wanted to explore the use of a vibratory tumbler. A vibratory tumbler works with a slightly different action than a barrel tumbler. While barrel tumblers are made for polishing rocks, vibratory tumblers are used mainly in the manufacturing industry for polishing parts, as well as by sportsmen for polishing ammo cases.



Cindi Leitz of Polymer Clay Tutor had a Spotlight article about Rob Keftoot and his use of a vibratory tumbler to polish polymer clay beads. You can do various searches to see what others have tried with different media and tumblers. Be sure to read through the comments! The idea of using tumblers for this purpose is not new. What Ken and I have tried to do is provide an up-to-date tutorial to guide other polymer clay artists in finding an alternative way to sand polymer clay pieces.



The vibratory tumbler has a base that vibrates. A molded rounded plastic bowl sits upon the base fastened with a threaded rod that comes up through the bowl. The vibration action causes the tumbling media and polymer clay pieces to flow around the bowl in a circular whirlpool-like fashion. This allows the grit to coat the polymer clay pieces and results in a finish comparable to hand sanding.

For this tutorial, a Lyman Turbo Pro tumbler was used. I chose this tumbler because I already had one (well, actually my husband already had one but I commandeered it for this experiment). Tumblers for home use can be found in sporting goods stores, and include other brands such as Hornady, Range-Maxx, and Cabela's. They can also be found on Amazon and Ebay.

I took Ken's excellent advice and purchased plastic pellets and began to experiment. When you use loose grit, a little water and soap, and add vibratory action, the grit is distributed among the pellets and it coats the beads themselves. You can easily wipe it off with a damp cloth, or rinse it off in a strainer. By using different grades of grits, you effortlessly work your way through consecutive levels of sanding.





Grit coating appears grey or "foggy" but can easily be wiped off

Comparing Barrel Tumblers and Vibratory Tumblers		
	Barrel Tumbler	Vibratory Tumbler
Media	Plastic pellets	Plastic pellets
Water	To fill to the top of material	To barely dampen the plastic pellets
Moisture Levels	Does not change, sealed lid	Can change, vented lid can allow moisture to escape
Grit	Coarse, Medium, Fine	Medium, Fine
Soap	Powdered Soap (Ivory)	Soft Soap (Liquid)
Time	48 hours per grit	4-6 hours per grit
Tumbling	Falls through rotating barrel	Waterfalls through vibratory bowl
Noise	Moderate	Noisy if used without lid

# Step by Step Pictorial: Vibratory Tumbler and Polymer Clay Jewelry

Getting Ready to Tumble:



1. To use the vibratory tumbler, fill the bowl about two-thirds full with plastic pellets. For this size tumbler, use about two pounds.

2. Before you place the pellets in the bowl, you will need to **dampen the pellets.** You can do this by placing about two cups of pellets in a large metal strainer and rinsing them with water. Allow the water to <u>drain completely</u> from the bottom of the strainer. Dump that batch of damp pellets into the tumbler bowl.

Repeat with the remaining pellets, rinsing and draining, until all two pounds of pellets are in the bowl. This is called a "slurry" mix.

3. Then add your polymer clay pieces.





4. Next, add two level teaspoons of the <u>Medium grit</u> by sprinkling it on the plastic pellets.

A note about grit: In a barrel tumbler, Coarse grit is used for the first round of tumbling. In a vibratory tumbler, the Coarse grit is simply too heavy and just settles to the bottom of the tumbler bowl. For this reason, it is recommended to use Medium grit for your first round of tumbling when using a vibratory tumbler. 5. Finally, add ONE PUMP of liquid Soft Soap. Any other brand may foam too much or too little, so liquid Soft Soap is recommended.





6. There are two rubberized knobs that go on the threaded rod to hold the bowl (and lid) to the vibratory base. Screw the first rubber knob onto the rod and keep screwing it down until it hits the plastic bowl. Give it a few more twists until the rubber knob *bulges slightly*. This part is necessary so the bowl does not vibrate off the base!

7. Plug in the tumbler. You should start to see your pellets flow with the consistency of a milkshake. The action will look much like a waterfall, where the pellets flow from the outer edge of the bowl, down into the center, across the bottom of the bowl, and back up the sides of the outer edge of the bowl



As the grit becomes distributed among the pellets, the tumbling medium will start to take on a grey look. You may need to experiment by varying the amounts of water, grit, and soap to tumble your pieces.

8. Once you are satisfied that you have the right slurry consistency, and your pieces are vibrating nicely in the slurry, you can screw on the top of the vibratory tumbler. Using the lid is not vital; however, it keeps the noise level down and also helps keep moisture in



the tumbler.

When you use the lid for the tumbler, the second rubber knob will screw down on the threaded rod and hold the lid in place. It is a good idea to leave the lid off occasionally while you check the motion of your slurry mix and pellets.

Second rubber knob on threaded rod to hold on the lid. Note the bulge in the rubber knob.



Plan to tumble your pieces for at least four hours. After the first hour, take the top off of your tumbler and watch the slurry to see if it is still working correctly. (See Trouble Shooting Section.)

It works out best if you allow for a full four to six hour time stretch to tumble the pieces with minor supervision. If you only do one to two hours of tumbling and try to come back to do more tumbling the next day, the pellets can dry out, and it can be difficult to get your medium to tumble correctly again. If you do need to stop the tumbler, then unplug it and wrap the bowl well with plastic wrap so the moisture does not change. When you return to tumble again, take off the plastic wrap and then start tumbling.

The tumbling time depends on how smooth your pieces are to begin with, and how smooth you want them when finished. Chances are you will need to experiment with tumbling time to suit your own standards.

Come back after the second hour and pull out a few pieces to look at the finish. More than likely, they will benefit from another two hours. The tumbling intervals will be dependent on your personal taste. Be patient in the tumbling process. Check every hour for your first few batches, until you are confident in gauging the tumbling time. Once you understand what tumbling will do to your pieces, you can allow the machine to run for a full four to six hour stretch with only checking once or twice to see if the moisture ratio is correct.

### After Tumbling:

When you are satisfied with the finish of your pieces in the medium grit, stop the tumbler and take off the bowl. You can fish out your pieces by hand and place them in the large strainer. You can then carefully pour the damp pellets and medium grit into a large freezer bag. It is likely you will be able to use the pellets for several more tumbling sessions.

Carry your polymer clay pieces in your strainer to your "grit bucket," a five-gallon bucket two-thirds full of water. Dump the pieces into the bucket. Gently wash the grit from the polymer clay, and use your fingers to rub the grit off as well. Then let the pieces drain in the strainer. The grit will fall to the bottom of the



bucket. For this reason, it is a good idea to purchase a five-gallon bucket with a lid from your local farm store or hardware store. Write a warning on the lid "GRIT WATER - DO NOT POUR DOWN DRAIN."

### The Next Grit:

After rinsing the polymer clay, transfer it to paper or cloth towels and prepare your next batch of pellets. Remember, always *use the same pellets with the same grit*. Do not interchange the pellets. So start fresh with another two pounds of plastic pellets. Rinse them, place them in the bowl, add polymer clay pieces and put the bowl back on the base. Screw the knob down to hold the bowl in place. This time, add only **one** level teaspoon of the Fine grit. Although this seems like less grit, the ratio of grit to pellets will be the same, as the particle size of the Fine grit is much smaller than the Medium grit. Follow up with one pump of Soft Soap. Then plan to tumble the pieces about four more hours, checking the tumbling motion occasionally, about once an hour.



Because a vibratory tumbler is not a closed system, moisture can evaporate out of the vented lid of the tumbler and your pellets can become quite dry. Be sure to maintain the proper moisture level and check often, particularly when you are familiarizing yourself with this new method.



Be sure to wash out your tumbling bowl between grits.

### DO NOT WASH GRIT DOWN THE DRAIN.

You can swish your bowl gently in the grit bucket and then wipe out carefully with a paper towel. Tumbling in a vibratory tumbler takes much less time than a barrel tumbler (and uses significantly less grit) but also will not remove coarse defects as well as a barrel tumbler. So either hand-sand your piece before tumbling to remove defects or refine your techniques using burnishing, gently wiping with alcohol, etc. Note that this tumbling method also results in rounded edges.



Tumbling time is dependent on your initial finish, and how satisfied you are with a four hour tumbling finish versus a six hour finish. Be sure to do some experiments on your own.



*This piece tumbled for two hours in medium grit* 

*This piece tumbled for four hours in medium grit* 

*This piece tumbled for eight hours in medium grit* 

*This piece also tumbled for eight hours in medium grit* 

# Trouble Shooting

Too Dry: You may notice that the pellets around the top edge are drying out a bit and rattling loosely around the tumbler. You can mist the pellets in the tumbler using a spray bottle. This will adjust the moisture level. Be patient! Do only a few mists at a time, then wait at least a full minute to see if more misting is needed.

Too Wet: If you use too much water, it will pool in the base of the bowl and pull the grit away from the plastic pellets, resulting in decreased efficiency. If this happens, you can unplug the tumbler, reach into the bowl and scoop the pellets to the side. Dip the corner of a paper towel into the puddle at the base of the bowl. It will wick up some moisture from the bowl without pulling the grit with the water. Another solution is to simply unplug the tumbler and walk away for 24 hours. The pellets will dry out and you can try to reset the moisture ratio, using the mister, again.





Too much water!

Too Much Soap: When too much soap is used, you will lose the waterfall action of your tumbler and you will see a foam start to form. If you find you have used too much soap, it is best to just rinse your pellets and start over.

Too Heavy Grit: Here is an example of what happens when Coarse grit was used in a vibratory tumbler. The Coarse grit is too heavy to waterfall through with the pellets, and it simply falls through the pellets and puddles in the bottom of the bowl. DO NOT use Coarse grit in a vibratory tumbler.



Note the pellets remain white, rather than grey. This indicates that the grit is not tumbling with the media. It is too heavy.

# The Final Piece

Once again, power buffing is the final piece to achieving a beautiful glow or shine.

This photo shows three pieces ready for buffing.



In the photo above, the first diamond shaped piece is left unpolished. The other two pieces have been polished using a flannel wheel on a buffing machine.

Unpolished

Polished



## The Results



I find the final result of tumbling to be comparable to sanding by hand. You would need to see and feel these pieces in person to make that decision for yourself. In my opinion -- and for what I do-- there is very little or no distinguishable difference. Except my hands don't hurt anymore!

I hope you find this tutorial useful. I anticipate you will achieve similar results, should you invest in tumbling equipment and materials to give it a try.

Good Luck!

Ken

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