



Trashmagination Podcast #108 – Shredding Plastic

Welcome to Trashmagination, a podcast about reimagining trash. I'm Carla Brown. Today's episode is about people who shred plastic into tiny bits using machines, then use other machines to melt them into shapes for reuse. The reason why this is important to understand is that most plastic in the world is not being recycled. Most municipal recycling programs struggle to find markets that will take the plastic. So if more people would invest in these machines to recycle plastic at an extremely local level, then maybe more plastic would get reused. I'm talking about recycling programs at the level of a campus or a school or a Maker Space.

The benefit of making plastic recycling into something that is hyper local is that it helps people to be more mindful about plastic use. It might encourage them to take extra steps to avoid producing plastic waste when they see how difficult it is to make it into something else that is beautiful and useful. And most important, it removes the sense that we can use something and then just toss it away. I'm sure you have heard the saying, "There is no away." When we take responsibility for things all the way through their life cycle, we make better choices up front. So today I'll share more about how this process works and talk about artists who are using this method to make interesting products.

Precious Plastic

Let's begin the story by talking about an organization named Precious Plastic [<https://preciousplastic.com/>], started by David Hakkens in 2013. David was studying at the Design Academy in Eindhoven, a city in the Netherlands which I am actually quite familiar with because my uncle and aunt lived there. David's idea was to design machines that are not too expensive which can then shred and mold plastic. David shared his designs in an open-source way, meaning that the designs are available for free to people who want to build them from scratch, but you can also purchase pre-made machines if you want to start shredding and molding plastic right away.

- <https://www.instagram.com/realpreciousplastic/>
- <https://www.youtube.com/c/davehakkens/>

In the show notes, I will share fun videos by Precious Plastic that show the machines [<https://youtu.be/76AFNixYjUE>]. First there is a shredder which has these big metal wheels that crunch up the plastic into flakes. Some entrepreneurs focus only on collecting plastics that are all the same color and type and then shredding them so they can sell the high quality plastic flakes. In the show notes, I'll link to a story about a company who is making graduation gowns entirely from recycled plastic and they buy those flakes from companies like this [<https://money.cnn.com/2016/05/16/technology/plastic-bottles-fabric-repreve/index.html>].

The next machine is an extruder. This machine melts the flakes into a goo. You attach the extruder to an injector. An injector is a mold that has the shape of the final product that you want to make. The melted plastic goes into the injector, you turn a crank to squish it so it totally fills the mold. There is also a machine called compressor which looks like an oven with a car jack on the bottom. You put the mold inside the oven part, crank the car jack and then it presses the plastic into a shape.

Those are the four basic machines. In addition, some companies make larger items like lumber or flat sheets of plastic like a table top. Those require larger and stronger machines that follow the same principles as the basic ones, but the machines are bigger with much larger molds.

What do people make with shredded plastic? They make patio stones, rock climbing wall holds, chairs and even plastic lumber. Sometimes the products are all one color if the plastic flakes were all the same color. But often the designers swirl together plastic that is different colors, resulting in a distinctive swirly appearance.

These machines are mostly focused on hard plastics, but they can also creatively reuse plastic bags. In fact, plastic bags can make a final product that looks like marble [<https://youtu.be/LV6Zp9i0mOc>].

Dave has a great Youtube channel where he shares how Precious Plastic has evolved since 2013. He and others in the Precious Plastic community make a video every two weeks with news about what is happening in the community. Across the world, entrepreneurs and community activists are using this technology in community improvement projects. For example, Precious Plastic Ukraine is using these machines to make tiles that get used as sidewalks while reducing their landfills [<https://www.facebook.com/rferl/videos/560274294665660/>].

DIY Plastic Recycling – Inspiring Examples

Next I'll talk about an organization called Perpetual Plastic [<http://www.perpetualplasticproject.com/#ppp1>], which is easy to confuse with Precious Plastic because they both have names with two words that start with P, but they are different organizations.

Perpetual Plastic makes a series of transparent boxes where you can do the plastic recycling processes safely at a public event [<https://youtu.be/sIsGhuZVT7Q>]. The first transparent box has a cleaning station where you clean the plastic, followed by a drying station. Next there is a shredding station with a big crank on the side that you can crank yourself rather than relying on electricity to turn the shredding wheels. Next there is an extruder which spits out the melted flakes into a very long plastic tube that looks like a wire. Then you can feed those plastic tubes into a 3-D printer which prints out any variety of items. So rather than using an injector with a mold, they use 3-D printing technology to make the new objects. They are also located in the Netherlands and are booked for events regularly.

Now I'll talk about design studios who are shredding and extruding plastic to make beautiful and useful items.

Plastik Kembali is a recycled art studio in Indonesia [<https://instagram.com/plastikkembali>]. They melt plastic to make plates, bowls, trays and tiles. They also weave plastic bags to make furniture and baskets. Their designs look like pottery with exquisite glaze treatments, but they are actually plastic with no glaze.

Thing Thing is a design studio in Detroit [<https://www.thingthing.us/>]. These designers make mostly furniture items such as lamps and mirrors. But their pieces tend to have a sense of humor. For example, a mirror has a tiny vase embedded on the shelf to a tiny plant can grow there. Or they make a lamp that looks like a smooshed pillow, but when you plug it in, it lights up. Or they made a stool by taking an old frying pan, filling it with melted plastic, sticking in wooden legs and boom – they had a stool. Their furniture pieces are colorful and durable for use in community spaces.

ByFusion is an environmental organization in California which makes ByBlocks, which are construction-grade building blocks [<https://www.byfusion.com/>, https://www.instagram.com/_byfusion_/]. They gathered tons of marine debris and squished them into ByBlocks to build a school in Kauai [<https://www.byfusion.com/building-with-ocean-plastic/>]. They have figured out how to make these blocks without doing a lot of plastic sorting in advance [<https://youtu.be/8FGt80Y51mM>].

Other Ways to DIY Recycle Plastic

Precious Plastic has refined a method to shred and mold plastic in a way that allows you to scale and do lots of recycling. But there are tutorials online that show how to shred and mold plastic in very small quantities, if you just want to experiment. One tutorial shows how to make small tiles using a sandwich press. Of course you would never use that sandwich press to make food ever again [<https://www.instructables.com/id/Sandwich-Toaster-Plastic-Recycling/>].

There are risks to doing DIY plastic recycling that you need to keep in mind. When you heat plastic, it creates fumes so you need to wear protective gear. Also, most of these products should not be used to serve food. Finally, there are many DIY plastic artists who are experimenting with running these machines using solar or other renewable energy sources.

Thank You for Listening!

Thank you for listening! If you have made something cool from shredded plastic, please let me know at trashmagination@gmail.com. Until next time, may you see shredded plastic as a source of art in your life!