

Readme: Manufacturing of Materials

In this document it will be shown, how to manufacture the different materials or pre-products that are used to produce the final prototype. The whole process is oriented at Precious Plastic (www.preciousplastic.com).

First, you need to collect the plastic that will be used. For this it is very important to just use PP (Polypropylene) and HD-PE (High-Density Polyethylene). The reason is not only the dangerous fumes that you get while processing other plastics. It is also a matter of the quality / constitution of the final product. Regularly there is a labelling on the bottom of the product you want to recycle, that tells you the plastic type. If you see the recycling triangle with a "2" or "5" in it, you're fine. If there is no labelling and you still want to use the plastic, you need to have a "plastic scanner", that works with near infrared sensors to identify the plastics type by measuring the wavelength of the light that is reflected by the plastic surface. A cheap, open source plastic scanner can be found here:

<https://plasticsscanner.com/>

We use the "PlasTell" Scanner:



If the plastics are washed / cleaned (in case there is dirt on it), it needs to be sorted by colour and plastic type. Then it is granulated by using a shredder. In the next picture you see what our shredder looks like, please follow the link to see the precious plastic shredders:

<https://community.preciousplastic.com/academy/build/shredder>



After the plastic is shredded you have the “flakes”, which will be used for the next steps.

Now you can put the flakes in the mould and prepare it to make sheets with it, using a “sheetpress”.

For more information about this machine, please follow this link:

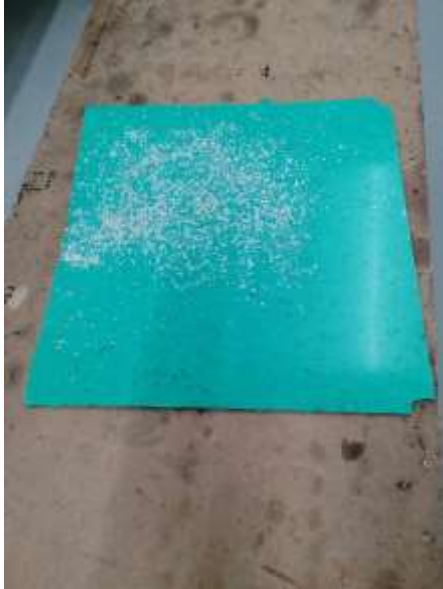
<https://preciousplastic.com/starterkits/showcase/sheetpress.html>



Our moulds, for example, look like this:



For our product, we need to have 3 mm thick moulds to have 3 mm sheets. Please make sure to put more flakes in the mould than you would expect, because there is much air in between the flakes. After the sheet is cooled down while still pressed (otherwise it can loose the shape) it may look like this:



Another machine to use to produce the open source product we introduce here, is the extrusion machine. The extrusion machine can melt the flakes, and presses it into a mould, where it gets the shape you want it to have.



Our mould for this system looks like this:



For more information about the extrusion process of precious plastic, please see:
<https://preciousplastic.com/starterkits/showcase/extrusion.html>

