

How to Make Tagged ABS Filament

A. Preparing the Extruder (Felfill Evo Extruder)

1. Undo the four screws on the outside of the extruder and open the device by removing the top half of the aluminum shell. Set aside.
2. Pull out the top half of the black plastic “pellet drum” that normally holds the pellets while extruding. Set aside.
3. Remove the two yellow walls from their respective grooves, and being careful, maneuver them so they can lay down or be held up gently by the wires connected to them. Basically, we just need them out of the way enough so that you can do the next step. If one of the main power cables comes undone, it will need to be reinstalled when you reassemble. It can happen and is easy to fix but can be avoided with care.
4. Install a paper catch in the bottom half of the drum (recall what the paper catch has looked like before, I’m sure you’ve seen it so try to imitate that). Use a fairly strong (heavy) paper if possible and use duct tape to anchor it in place to the bottom half of the drum. It should not tightly hug the main screw but be slightly below it so it can rotate freely.
5. Put yellow walls back on, put top half of drum back on, return the top half of the aluminum shell, and refasten the screws. Plug in extruder and make sure it turns on properly before proceeding.
6. Turn on and set extruder temp to 210 degrees Celsius. Let it heat as you prepare the pellets and Sodium Chlorate.
7. Turn on fan and spooler. Set spooler to “Soft” and set the movement distance of the carriage to anything, it doesn’t matter since we don’t load to a spool.

B. Preparing the Pellets and Sodium Chlorate

1. Just like preparing a liquid solution, use the scale to measure out 1-part Sodium Chlorate and 9-parts ABS pellets by weight (i.e. 1g NaClO_3 and 9g pellets or 10g NaClO_3 and 90g pellets, or any other amount that maintains that ratio.) Depending on how much you make, add some extra NaClO_3 to make up for losses in the process. If on the magnitude of a total of 100g, I would add about 3-4g extra NaClO_3 for a total weight of 103-104g.
2. Keep in a paper plate (either a fresh one or reuse one from the workspace). Stir but not too heavily so you don’t agitate all the NaClO_3 to the bottom of the bowl.

C. Extrusion

1. Once the extruder is done preheating, add the bowl’s contents to the drum. Do not overload because the weight can break the paper catch in the bottom of the drum. Add maybe a quarter of the bowl at a time. Make sure to get part pellets and part power when adding from the top of the bowl. Once added, turn the RPM up to a slow speed so you can feed it through the fan and spooler. Discard the first half a meter of meter of filament based on appearance.
2. Continue the extruding process until the filament does not come out any more or the drum is empty. Then you will have to cut up the filament and extrude those pellets by repeating this process.