

The Recreator 3D - PET#1 Pultrusion Unit

DIY 3D Printer Filament From Plastic Bottles

Mission Statement and History

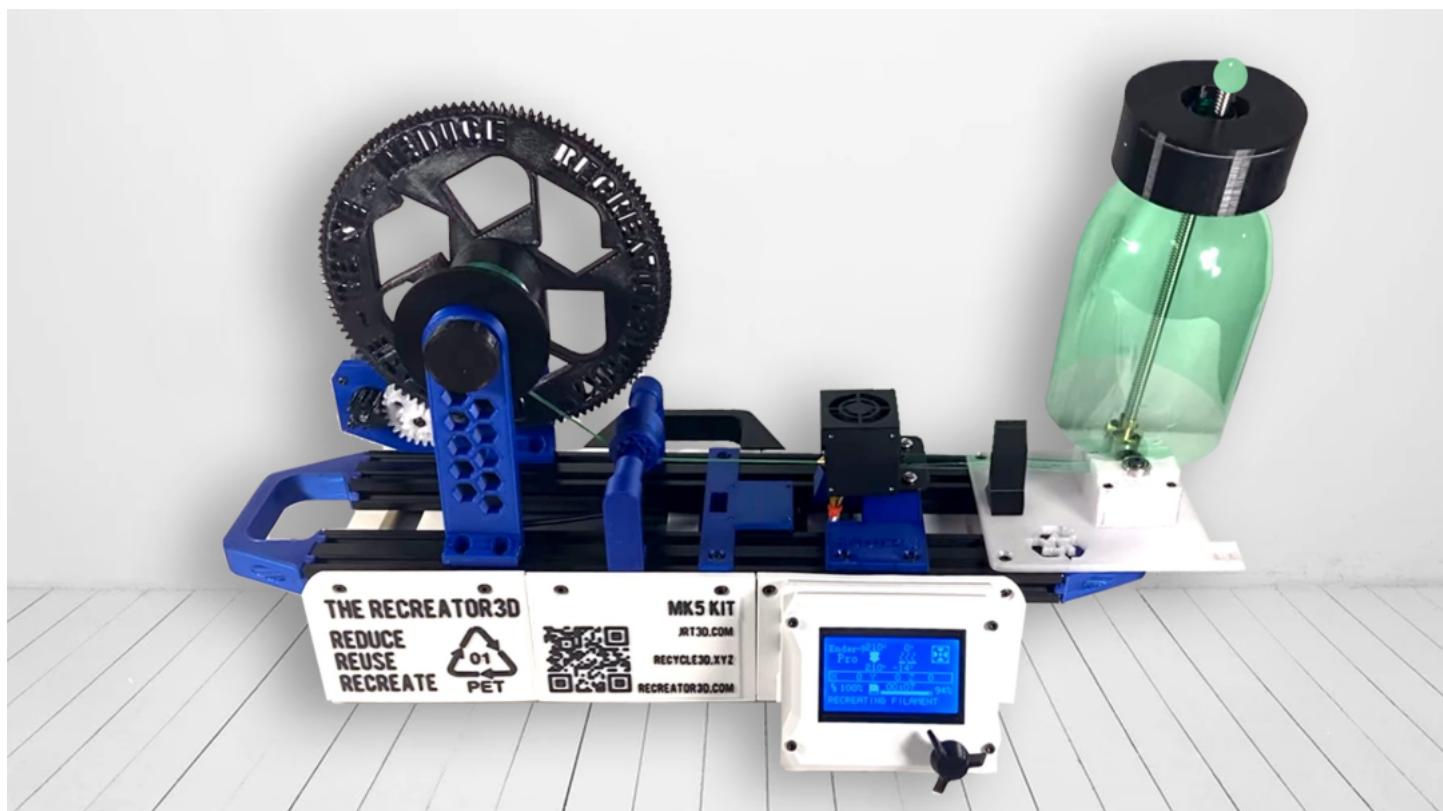
The Idea is simple!

Strip down PET#1 Recyclable plastic bottles.

Convert into new usable 3D filament.

Load up your favorite 3D printer and recreate!

Reduce, Reuse, Recreate...with The Recreator 3D!



The Recreator 3D's purpose is to recreate PET #1 recyclable plastic bottles into usable 3D filament. The smallest, most compact and portable pultrusion unit seen within the community. It's ability to strip, reform, color, and spool all in one continuous pull cycle; coming in under \$220. This community kit will inspire most households and community team leaders.

The Recreator 3D was originally created with the XViCO X3S 3D Printers. It's base structure; a few accessories, and a handful of 3D Printed parts are all that was used. Since then it has had 5 revisions and now uses an Ender 3 among a Universal Kit.

The Recreator 3D is 100% free as a community build. With the Pet-Pull group from Russia as visual inspiration for first using the pultrusion method. I wanted to further adapt PET#1 recycling to be more accessible to every person in an even easier way. With this goal; we'll reshape our future's recycling methods, one bottle at a time!

Already 3D printers are fastly becoming items that are thrown away as freely as plastic bottles. Not only does this unit help stop plastic waste, it also helps us look at our aging technology as new viable forms of functions. Thus giving a new life and purpose. The Recreator 3D MK5Kit was made to be a universal solution for the use of most standard aluminum extrusions i3 style fdm printers.

With the over saturation of the market, the Ender 3 is one of the most used printers within the community. With it being the most affordable option as a 3D printer; most new users become discouraged, and easily send their slightly used printer back to Amazon. These units are easier to be sold at a discount, then they are to be repaired and resold for very little profit. The printer becomes an inexpensive throw away or easily resold for a very low price if not given as a gift.

The Recreator 3D - Mk5Kit: Ender 3 is one of the cheapest options available for PET#1 pultrusion for 3D printing filament. It's method of pultrusion is not a 100% solution to ending plastic waste, but is the easiest way to reclaim waste as usable filament. For under \$220 these units can be created by average people and turn homes into small recycling centers as well manufacturers among 3D printing.

The Recreator 3D's process unfortunately still leaves the waste of tops and bottoms of the plastic bottle. To avoid continued unwanted waste, research has started on new and cheaper solutions to further refine this material into shreds and continue to use it in adapting technologies like extruder heads for 3D Printers as well injection molding.

Most recycling systems are broken primarily because there is no money in it. Gas emissions are created the second that product is made. The plastic is bought by the consumer for the liquid. Without the plastic there is no product. Now that plastic is treated as trash. Perhaps it's recycled and we have an idea about where it goes. Ultimately, most of that is a figment. China stopped taking in plastic waste imports; simply because they couldn't handle the waste, nor was it profitable. They also became more polluted.

My idea is that the people must be more included and able. They must have affordable options to recreate their waste into new items. If the plastic doesn't leave the consumer's house, the gas emission journey stops at their door. Otherwise there is so much more impact the plastic can have on its continued journey of life; being set on fire or put into the ocean, rather than actually recycled and reused.

To fix a broken system, we must change the paradigm from the inside out.

Continued resources below...

The Recreator 3D - MK5Kit : Ender3 - DIY 3D Printer Filament From Soda Bottles

- The Recreator 3D - Commercial Video

<https://youtu.be/qRcsYdBe298>

- The Recreator 3D - MK5Kit : Ender 3 DIY Build Video

<https://youtu.be/PLiHF8iA8iA>

- Unit Build Notes and Parts to Buy can be found here:

<http://recreator3d.com/mk5kitender3>

- Operations Manual can be found here:

<http://recreator3d.com/manual>

- Join the Facebook Group to Stay Up To Date!

<http://facebook.com/groups/recreator3D>

The History of The Recreator 3D

At the start of 2021 I started to build my own PET#1 3D printer extruder based on the following video :

<https://youtu.be/L3TxCJCbMEY>

- 3D Printing Directly from PET Plastic Bottles

I spent a couple months on this concept and destroyed it while testing it.
While being disappointed and further research, I found the following video:

<https://youtu.be/AmJzqdA3zSg>

- Print from bottle PET! Directly a 3D printer from ribbon a bottle PET

as well the following :

<https://youtu.be/G16bqoB8Z38>

- Machine for processing PET bottles into a rod for a 3D printer.

Rather than use the original PET-Pull design, I wanted to use what I had on hand while doing work with XViCO X3S units. I got to work on my own design, using the X3S as a base build. Among this time, I found the following article:

<https://ca.news.yahoo.com/saskatoon-youth-led-non-profit-202904379.html>

Which soon befriended me Kai Chen, who started a non profit based around turning soda bottles into 3D Filament <https://www.facebook.com/skecoyxe>

Kai introduced me to PetBot, the machine they were using for this process. Soon after, Kai befriended me to Roman Neskashev, creator and owner of PetBot. After what felt like a short milestone, I had finally acquired a PetBot.

During this very short time; I posted about PetBot and the converted filament it was able to create on Twitter, and suddenly I was in my 15 minutes of fame after Naomi Wu reweeted me. This catapulted the PET Pultrusion process into the mainstream.

Soon shortly after; I finalized my own design, The Recreator 3D - MK1, as I had started to promote the filament and the demand became too much for one machine. Sticking with the nature of the original idea of the PET-Pull project, I decided as well to keep my build notes open source and free to the community.

Since the release of The Recreator 3D MK3Pro to the community; many requests have come in from countries without easy access to recycling, let alone 3D printers. Many requests came in to use an Ender 3 as it's the most commonly used printer. So The Recreator 3D - MK5Kit : Ender 3 was made for the community.

Moving forward Through The Recreator 3D Facebook group, I plan to occasionally offer pre-built units to anyone lucky enough to get one. Roman @ PetBot has released a slim-line version of the PetBot for Educational Use, for easier shipping and cheaper rates.

PET Pultruding seems to be all the rage among 2022 and seeing all the different variations of the process has been extremely fun and educational. It's not going to be everyone's cup of tea. Nor will it end all solutions to our plastic waste solutions. It is tough for people who enjoy new processes. A cheap and easy way to be able to experience self made filament, in a less expensive way than more industrial methods.

The process does create its own waste by using Plastic Bottles, but with a plastic shredder...soon, that's the next adventure to this story!

With the above in mind, I've also started The following Facebook Groups:

<https://www.facebook.com/groups/petpultrudersunited>

PET Pultruders United is a group for all PET Pultruder units regardless of shape, size or creed. A place to get ideas and talk shop about the overall process.

<https://www.facebook.com/groups/recycle3d.xyz>

A group for home recycling, DIY methods and machines. Showcasing and sharing varying methods for new ways of recycling; mainly intended for 3D printing, but thinking beyond into new experimental methods as well!

What can we recycle at home? This can cause the stop of carbon footprint at our houses. We can help change how we recycle and use our waste!

Thanks for taking the time to learn more about The Recreator 3D and how it's been able to grow with it's short time of release.

Below please find more information about the PET#1 filament and how it's used within a printer.



Thanks for your interest in the Recreator 3D's Converted PET Plastic Bottle Filament. We hope that this gives you a great idea of what this filament can do for your production needs and what owning a Recreator 3D can do for you!

We've included this sheet to easily guide you along in your first time use of this experimental filament.

This filament is drawn and formed through a heated source via a pull drawn method known as, Pultrusion: <https://en.wikipedia.org/wiki/Pultrusion>



This filament is actually similar to a straw, with a hollow inside. The outer diameter is formed through the nozzle (any size can be drilled), ours is around 1.75mm. With the Expansion of this material as well the nature of it being hollow...this diameter can be within an "ish" variant.

With the above in mind – We've found increasing our Favorite Slicer's Flow Rate to 130% has allowed us to bypass this variant.

Please use the filament wisely. We suggest the smaller amounts be used first among your initial calibrations. Once you're happy with your settings – Try something with the larger amounts.

We've found that this filament needs to be cooled - With no cooling the filament can transition to a crystallized state causing some clogging.

If you find your filament is not properly bonding – You can increase your Flow Rates within your Slicer. We've found using the following Slicer Settings has allowed for us to print successfully. If you find this not to be the case, please reach out to us via our Facebook Group Account.

We'd also love to know about what settings worked for you and what you printed, please Join the Group and Share your finished prints!



The Recreator 3D - Plastic Bottle to PET Filament Converter

The Recreator 3D PET Filament from Soda Bottles Suggested Slicer Settings Using CURA 4.8 and Ender 3 Clone



- Layer Height.....0.2mm
- Nozzle Temp.....260
- Bed Temp.....70
- Flow.....130%
- Initial Layer Flow.....130%
- Print Speed30%
- Fan.....15%
- Retraction.....4.5mm
- Retraction Speed.....40

3DBenchy - The jolly 3D printing torture-test by CreativeTools.se
- Printed with Coca Cola Soda PET Bottle on a Ender 3 Clone with Direct Drive.
STL: <https://www.thingiverse.com/thing:763622>



Join the fun @ Our User Facebook Group

SCAN TO FACEBOOK @

<https://www.facebook.com/groups/recreator3d>

Shared Slicer Profiles, STL Files, and Successful Prints!

JRT

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