

Getting Your Own Custom 3D Printing Filament

Thank you for your interest in a custom Filamet™ build from The Virtual Foundry. Beyond the standard Filamet™ 3D printing materials in The Virtual Foundry store, you have the option to commission a special Filamet™ build just for you. Advance your research, get your materials into shapes only available in 3D printing and take advantage of this low-cost additive manufacturing technology.

Introduction

All Filamet™ materials are made in generally the same way. A powdered base material is mixed with our signature PLA-compliant binder and extruded into 3D printing filament line or pellets.

Because the operation is the same for all materials, you can apply nearly any solid material to the process. Materials we can't work with include: toxic materials, highly active materials like sodium, chemically unstable compounds and strong acids or bases.

Past custom Filamet™ builds include Molybdenum, Titanium Grade 2, Barium Titanate, Magnesium, Moon Dust Simulant (Basalt) and more.

Materials Needed

Base Material

Most importantly, does your desired material come in powder form?

Powder that is spheroid and sized so that the majority of particles are 45 micron and the rest fill in smaller (-325 mesh) works best although we have worked with powders outside these parameters. What we're after is the optimum balance between minimal surface area and maximum apparent density.

We'll typically need a minimum of 1kg and a maximum of 3kg of the base material. This amount varies depending on its density. Very light materials like aluminum can be less. Very dense

materials like tungsten will need to be more. We're more interested in volume than mass but that 1kg - 3kg measure is a good amount for "middle weight" materials.

You may have your own powder to send us. Or, we'll need to find a supplier for the powder. If your desired base material isn't readily available in powder form, we can look at options to create the powder. This will be expensive.

Binder

The binder in your custom Filamet™ will be the standard PLA-compliant binder used in all Filamet™ materials. We'll supply all of that every time.

The Process

You will receive a Project Plan from The Virtual Foundry that outlines the project parameters, pricing, timelines and terms. Once that Project Plan is signed and returned, and payment is received, work begins.

You will either send us your preferred powder or we will work together to source the right powder.

Once the powder is received in-house, we'll give it a look. If the base material has different qualities and properties than what we've worked with before, there will be an evaluation fee. We need to make sure this material will work in the manufacturing process so we have a few tests to ensure success.

If the base material has familiar qualities and properties, no special evaluation is needed.

Once we've determined that the base material is a good match for the process, manufacturing will begin.

After manufacturing is complete, we'll do a test print or two and package up the filament line on our standard spools.

As long as everything looks good at that point, we'll ship your custom Filamet™ line to you! You can expect a 2-4 week lead time between the date we receive the powder and the date we ship the final Filamet™ line to you.

Pricing

Powder

If you send us your own powder, there is no cost added by us.

If The Virtual Foundry procures the powder from a supplier, that powder cost will be added to the project cost.

Evaluation

If your base material is unusual and needs to be evaluated to ensure it will work in the Filamet™ manufacturing process, you'll pay an evaluation fee of \$500.

Manufacturing, Test Printing, Packaging

Manufacturing, test printing and packaging costs \$5000. That's for a minimum of 1kg of base material and a maximum of 3kg.

Shipping

If the final shipping destination is within the contiguous United States, shipping is free. If the final Filamet™ destination is outside the US, you'll need to pay those shipping costs and any associated import fees.

Payment

Payment is required before any work begins. Payment methods include credit card, wire transfer and ACH transfers. Payment is for work performed in good faith regardless of the outcome.

What You'll Get

You'll get 1kg - 3kg of your very own material in a 3D printable filament that can be printed in common FDM / FFF 3D printers. The print settings will be the same as all other materials made by The Virtual Foundry.

The debind process will be very similar to our current published debind process for our other materials. The sintering process will depend on standard sintering parameters of your base material.

Development Projects

Perhaps you'd like your base material in a different binder than our standard. Maybe you want an additive like graphene or carbon fiber in your Filamet™.

Cases like these that involve more than our standard evaluation and manufacturing processes fall into the development category. Here, you'll tell us as much as you can about the results you're after and we'll talk through a plan.

Development projects like this start at \$20,000.

The resulting new product may be something you want to keep in-house.

If the new product is something The Virtual Foundry would like to add to its catalog, and your organization can accommodate that, we'll work out a profit sharing arrangement so you can recoup some of that development cost.

To Move Forward

Contact us at info@thevirtualfoundry.com about the material you'd like in filament form. We'll talk through the plan and start you on your journey to your very own custom 3D printing filament.