



Material Information

Use this information to help you determine what material(s) you would like us to use to bring your idea to life!

PLA

Polylactic Acid (PLA) is a thermoplastic material derived from renewable resources such as corn. PLA filament is easy and safe to use which makes it the most popular choice for hobbyists and schools. Manufacturers also use PLA materials to make parts for toys, medical devices and many other products. Thanks to its natural origins, PLA plastic can biodegrade into non-toxic materials making it a sustainable choice for 3D printing.

Variety and accessibility make PLA useful for enthusiasts and professionals alike. Low PLA print temperatures let this filament work with most FDM 3D printers. The transparency of raw PLA accepts pigments and fillers to create a wide range of colors and materials properties. And to finish the job, a range of post-processing techniques will make the final object look amazing.

PLA is more forgiving than many 3D printing materials. During printing, objects are more likely to adhere to the print bed even if it is unheated. The final parts are not as susceptible to warping as they cool. Unlike other 3D printer filaments, PLA produces few noxious fumes which makes it much safer to use around kids and pets.

You will want to choose PLA filaments when printing rapid prototypes, household objects and anything for kids. When expressing your creativity in 3D, the aesthetic options with PLA printing can't be beaten. However, you will want to avoid applications where the object must support mechanical loads, high temperatures or prolonged exposure to daylight, water, etc.

PETG

PETG (polyethylene terephthalate glycol-modified) combines the advantages of popular materials such as PLA and ABS. PETG is easy to work with and produces strong, durable objects. Better yet, the lack of noxious fumes lets you use unventilated 3D printers without worrying about kids or pets.

Provided your 3D printer has a heated bed, PETG filament is a great choice for general-purpose 3D printing. The material is stronger and less rigid than PLA which makes PETG objects more durable. Although ABS offers similar benefits, PETG 3D printer filament is easier to work with. Having an enclosed print volume for PETG temperature control, for

example, is less important since PETG does not contract as much during cooling. It also comes in a variety of colors.

Most printers support the nozzle and bed temperatures PETG filament requires. However, you do need to watch for PETG material behavior. When melted, it is less viscous than other thermoplastics which could lead to oozing while printing. Dialing in retraction, bridging and other slicer settings will address most issues when printing PETG, but the final object may need post-processing to remove the remaining artifacts.

The medical and food industries often use PETG plastic to package their products. The lightweight material is strong, durable and flexible which makes it ideal for protecting the enclosed products. For the same reasons, PETG filament is used for objects such as smartphone cases that must withstand the knocks and dings of everyday use.

ASA

ASA is a highly durable material that offers exceptional UV, weather, mechanical, and thermal resistance. Its unique combination of properties makes it an ideal material for printing outdoor models and structural parts that require long-term exposure to challenging outdoor conditions.

ASA also offers extraordinary oxidation, and aging resistance, providing effective protection against breakage and color degradation when used outdoors for long-term purposes. Suitable for outdoor applications and regular structural requirements due to its toughness and high impact strength.

TPU

Thermoplastic polyurethane (TPU) is an elastic material with properties similar to rubber. Easier to print than other flexible 3D printer filaments, TPU works with most printers designed for PLA or ABS. Use this filament anywhere you need a strong, elastic part.

Elasticity is the main reason for printing with TPU filament. The material bounces back when deformed without losing its strength or durability. Compared to other flexible 3D printer filaments, TPU is much easier to handle. You get less warping as the part cools so you will not need an enclosure to manage temperatures. And since TPU 3D printing does not generate noxious or toxic fumes, you do not need extra ventilation.

Even some basic 3D printers work with this filament as TPU print temperatures are similar to PLA or ABS. But the flexible nature of the material does require some care when printing. Direct-feed extruders produce the best results since friction in Bowden tubes can snag the filament. Print slowly and avoid retractions to keep the filament flowing consistently. TPU plastic parts do not take well to post-processing, however, so factor this into your designs.

TPU material properties make it the perfect choice when you need a part to bend, flex, squish or stretch. Objects that need to dampen vibrations or resist impacts are good targets for TPU 3D printing. You can also make shoes, costumes and other wearable objects more comfortable by going with TPU filament. It also comes in a wide array of colors.

Flexible PLA (FPLA)

FPLA is environmentally friendly, non-toxic, and biodegradable. Properties of this filament are low shrinkage, high strength, high rigidity, and good toughness. Suitable for all types of FDM3D printers, suitable for printing handicrafts, artworks, industrial design samples and product models with higher toughness requirements. FPLA is similar to TPU, but much easier and faster to print with.

PLA-CF

PLA-CF is carbon fiber reinforced PLA with improved stiffness and strength. PLA-CF is easy to print and beginner-friendly like regular PLA. The prints are in a matte finish with almost invisible layer lines, which make it suitable for printing general engineering parts or models requiring a better appearance, like bike frames, brackets and toys.

PLA-CF exceeds the mechanical properties of PLA Matte in XY Bending Strength, Z Bending Strength, XY Bending Modulus, Z Bending Modulus, XY Impact Strength, and Z Impact Strength by between 20% and 115%, making it more suitable for printing models with higher strength requirements.

PETG-CF

PETG-CF is a composite material consisting of PETG and carbon fiber. The new formula greatly improved printing quality by reducing nozzle clogging and clumping compared to traditional PETG. With the addition of carbon fiber, PETG-CF offers improved strength while maintaining good toughness and a shiny look. It is an ideal material for drone parts, racing models, and various functional parts that require both high performance, especially impact strength, and a sleek appearance.

UV Resin

Similar to ABS thermoplastic materials, the resin has good toughness, excellent impact strength and high mechanical properties, strong scratch resistance, is not brittle, can drill holes, suitable for printing tough industrial parts.

With good fluidity, the resin can quickly backflow and solidify to shape, which shortens the printing time, improves the success rate of model printing, and reduces resin adhesion to the FEP film.

The Elegoo ABS-like resins that we use contain high-quality pigments and photoinitiators, so the models printed with resin have a very pure and stunning color effect, just like works of art!

Compatible with most LCD 3D printers using 405nm UV light source technology, with a wide range of applications from tabletop models to industrial parts that require a certain strength or toughness.

XTC-3D

Protective coating for smoothing and finishing 3D printed parts that does not melt plastic. XTC-3D™ fills in 3D print striations and creates a smooth, high gloss finish. The need to post finish is almost eliminated. XTC-3D™ can be applied to both SLA and SLS prints. It works with PLA, ABS, Laywoo, Powder Printed Parts and other rigid media such as EPS, EPDM and urethane foam as well as wood, plaster, fabric, cardboard and paper. This product gives a smooth finish to 3D printed parts.

Silicone

We use non-toxic food-grade, platinum-based, environmentally friendly, odorless silicone. Silicone is often use as a protective coating, slip resistance, and to reproduce details of other items.

Our standard silicone cures translucent, soft, flexible, and strong with easy release. We can add color to it as well with mica powder.

Our silicone choice also has high temperature resistance (20°F - 482°F), good tear and tensile strength, high resistance to aging, and high duplication times.

Great for use with casting Resins, Wax, Gypsum, Jesmonite, Concrete, Soap, Candle and also can be used as Molds Making for Candy, Chocolate, Cake and Ice Cubes, coasters, and even adding slip resistance to the bottom of objects. The possibilities are endless!

For more information, you can do your own research and also reach out to Contrive3D anytime by visiting our website contrive3d.com.

