Last Updated: 2024-08-22

Technical Data Sheet

Filalab PCTG

Product Information

Product Name	Filalab PCTG
Chemical Name	Poly Cyclohexylenedimethylene Terephthalate glycol-modified
Diameter	1.75 ± 0.05 mm
Manufacturer	Filalab, Vilnius, Lithuania

General Description:

Filalab PCTG Filament is a versatile, easy-to-print material known for its excellent clarity, toughness, and chemical resistance. PCTG is a glycol-modified version of PET, offering improved impact resistance and better printing characteristics. It is ideal for applications requiring transparency, durability, and good heat resistance, making it suitable for a variety of functional parts and prototypes.

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Product Properties

Property	Test Method	Result
Specific Gravity	ASTM D792	1.23 g/cm3
Shrinkage	ASTM D955	0.2 – 0.5 %
Rockwell Hardness	ASTM D785	105 HRR
Tensile Strength @ Yield	ISO 527	44 MPa
Tensile Strength @ Break	ISO 527	46 MPa
Elongation @ Yield	ISO 527	4.4%
Elongation @ Break	ISO 527	220%
Flexural Strength	ISO 178	60 MPa
Flexural Modulus	ISO 178	1,600 MPa
Izod Impact Strength Notched @ 23°C	ISO 180	93 KJ/m2
Heat Distortion Temperature @ 0.455MPa / @ 1.820 MPa	ISO75	76/64°C
Haze	ASTM D1003	< 1.0%
Transmittance	ASTM D1003	90%

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Recommended Printing Settings

Nozzle Temperature	250-280˚C (270˚C for Bambu Lab printers)
Bed Temperature	85-90˚C
Fan Speed	50-85%
Printing Speed	40-250 mm/s
Bed Type	Textured PEI Sheet, Smooth PEI Sheet
Optional Adhesives for Build Plate	Bambu Lab Glue Stick, Magigoo
Filament Drying Recommendations	Temperature: 55-65˚C, Drying Time 6-12 hours

Safety Information:

Filalab PCTG Filament is generally safe for 3D printing, but it is recommended to print in a well-ventilated area to avoid inhaling any fumes generated during printing. Although the fumes are less intense than ABS, it is still important to avoid prolonged exposure. Use an enclosure or air filtration system if printing in a confined space. Always handle the filament and printed parts with care, and consult the Safety Data Sheet (SDS) for more detailed safety guidelines.

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Storage, Handling, and Drying Process:

PCTG filament is hygroscopic, meaning it absorbs moisture from the environment. Proper storage and drying are essential to maintain print quality and filament properties.

Storage:

- **Environment:** Store in a cool, dry place away from direct sunlight.
- **Sealing:** Keep the filament in an airtight container with desiccants to prevent moisture absorption.
- **Desiccant Use:** Use silica gel packets or other desiccants inside the storage container to maintain low humidity levels.

Drying Process:

- **Drying Temperature:** 65-75°C (149-167°F)
- **Drying Duration:** 4-6 hours
- **Drying Equipment:** Use a filament dryer, convection oven, or food dehydrator.

After drying, immediately store the filament in an airtight container to prevent moisture reabsorption.

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Features:

- **High Clarity:** Ideal for transparent and translucent prints.
- **Impact Resistance:** Strong and durable, suitable for functional parts.
- **Chemical Resistance:** Resists a wide range of chemicals and solvents.
- **Easy to Print:** Low warping and good adhesion to the build surface.

Pros and Cons:

Pros:

- **Tough and Durable:** High impact resistance and flexibility.
- **Clear Prints:** Excellent for transparent applications.
- **Chemical Resistance:** Resistant to a variety of chemicals.

Cons:

- **Lower Heat Resistance:** Less heat resistant compared to other engineering-grade filaments.
- **Moisture-sensitive:** Requires proper storage and drying.
- **Moderate Print Temperature:** Needs higher nozzle and bed temperatures than PETG.

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