THE TWO STEP PROCESS

Technical Data Sheet Updated 1/21/2025

PET-CF Filament

PET-CF is a high-performance FDM 3D printing filament manufactured with LUVOCOM® 3F PET & containing 10% carbon fiber. This material offers temperature resistance, low shrinkage, and excellent printability. Compatible with non-heated chamber FDM 3D printers, it delivers superior rigidity and tensile strength, maintaining structural integrity at temperatures up to 150°C.

Main Features

- High stiffness
- Low warping
- High temperature resistance

Main Specifications

Physical Properties (Test Method)

- Density (ISO 1183): 1.31.31 g/cm³
- MFR(190°C/2.16Kg) (ISO 1133): 3~6 g/10min
- Moisture Absorption(23°C/24h) (ISO 62): ＜0.3%

Mechanical Properties

- Tensile strength (X-Y) (ISO 527): 75-85 MPa
- Elongation at break (X-Y) (ISO 527): 4-5%
- Elongation at break (X-Z): 1.5-2.5%
- Flexural Modulus (X-Y) (ISO 178): 4500-5000 MPa
- Flexural Modulus (X-Z): 2000-2500 MPa
- Flexural Strength (X-Y) (ISO 178): 140-150 MPa

- Impact Strength (X-Y) (ISO 180): 25-30 KJ/m²

Thermodynamic Properties

- HDT@ 0.455 MPa(66 psi) (ISO 75): 190°C
- Continuous Use Temperature (IEC 60216): 150°C

Recommended Printing Parameters

- Nozzle Temperature: 260-290°C (recommend 280°C)
- Bed Temperature: 70-100°C (recommend 90°C)
- Bed Materials: Tempered glass, BuildTak, Carbon fiber board, PEI Buildplate (With a separation-layer of adhesive)
- Nozzle Diameter Minimum: 0.4mm, .6mm recommended.
- Nozzle and Feeding Gear Material: Hardened/coated Steel
- Model Cooling Fan: OFF
- Layer Height: 0.12-0.3mm
- Printing Speed: 60-150mm/s (recommend 100mm/s)
- Idle Speed: 60-250mm/s
- Printing Environmental Temperature: Room temperature -70°C
- Retraction Distance: Nozzle diameter recommended
- Retraction Speed: 40-60mm/s – Tune to your environment

Usage Notes

1. Keep packaging sealed when not in use to prevent moisture absorption and contamination.
2. If material shows signs of moisture absorption, dry before use at 80°C-100°C for minimum 12 hours.
3. When using as support material, remove supports after model has completely cooled.
4. Post-processing recommendation: Anneal at 120-130c for 6-8hours to improve strength. Experimentally determine shrinkage for your particular application.

Disclaimer