

Siraya Tech Fibreheart PPA-CF

Black



PRODUCT INTRODUCTION

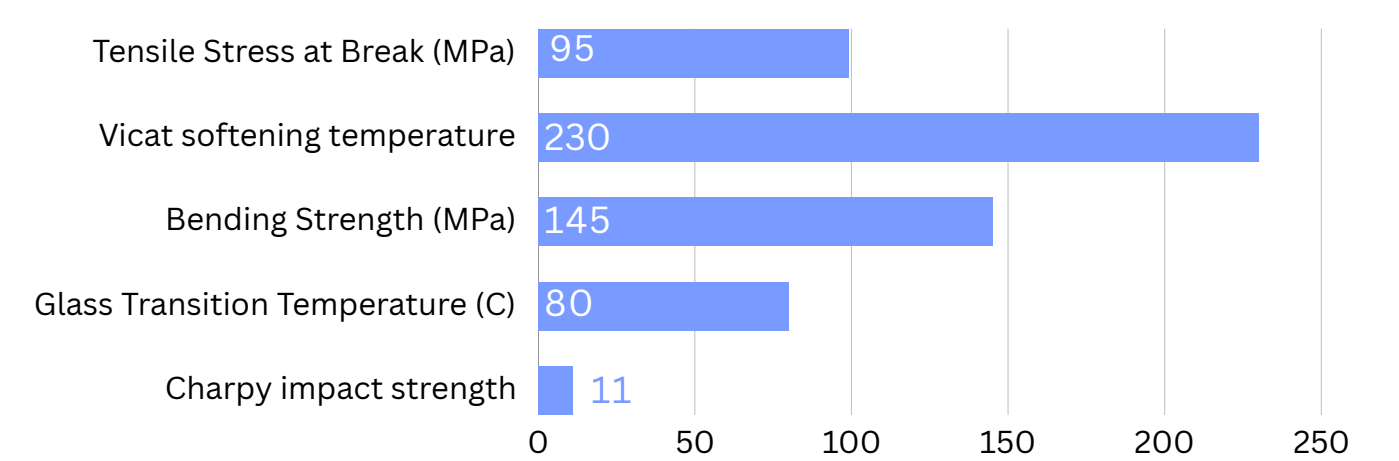
- **High Strength and Durability:** Carbon fiber reinforcement for tough, stress-resistant parts.
- **Advanced Reinforcement:** 15% carbon fibers for superior mechanical properties and reduced warping.
- **Thermal Resistance:** Vicat softening temperature reaches 230°C, which is very suitable for high-temp applications.
- **Low Moisture Absorption:** Better printability and stability than PA6 & other nylons.
- **Stable accuracy:** Chopped carbon fibers are evenly distributed to form a strong network solidified structure, ensuring high accuracy for complex engineering projects.

APPLICATIONS

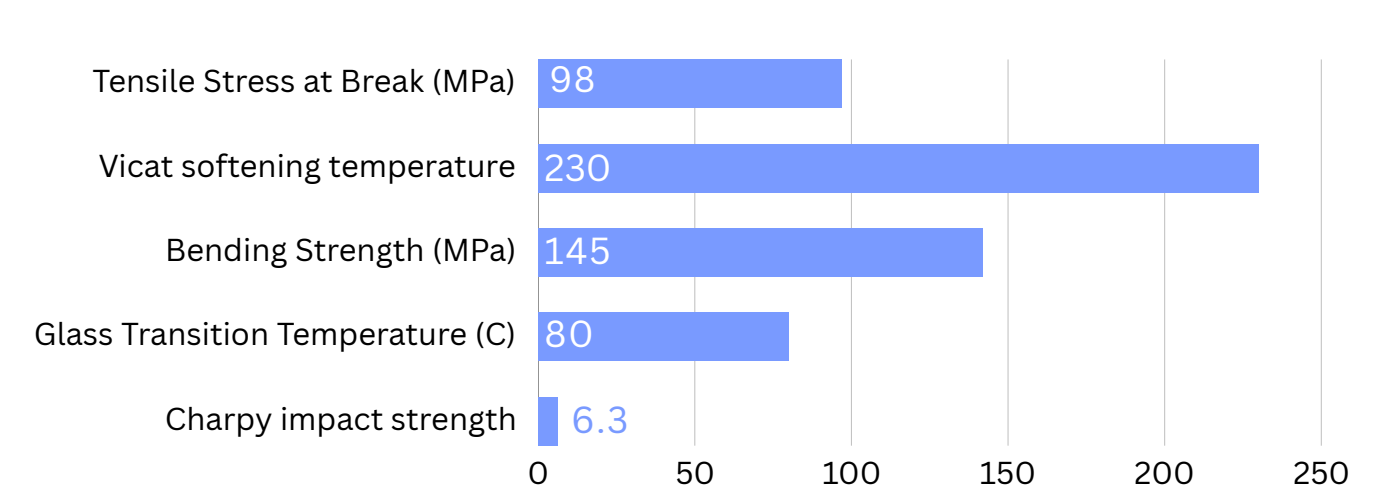
- Automotive, drones, robots, and other mechanical components.
- Industrial and Electronics: High-strength tools, industrial equipment components, robotic arms, electronic casings, and insulators.
- Medical and sports equipment: Durable medical instruments, sports equipment, and outdoor gear.

Property Data

Unannealed



Annealed



Mechanical Properties	Unannealed	Annealed	Method
Tensile Stress at Break (MPa)	95	98	ISO 527
Young’s Modulus (MPa)	7800	8700	ASTM D638
Elongation at Break(%)	2	1.6	ASTM D638
Charpy impact strength (KJ/m^2)	11	6.3	ISO 179
Bending Strength (MPa)	145	145	ISO 178
Bending Modulus (MPa)	6800	7350	ISO 178

Work Flow

Other Properties	Unannealed	Annealed	Method
Vicat softening temperature (°C)	230	230	ISO 306
Glass Transition Temperature (°C)	80	80	ASTM D3418
Melting Point (°C)	232	232	ASTM D3418
HDT (°C)	82.5°C	119	Method A @ 1.80 MPa
HDT (°C)	84.5	192	Method B 0.45 MPa
Biocompatibility	Not Tested	Not Tested	-
Filament Density g/cm ³	1.2	1.2	ISO 1183

Preparing for Printing

Drying	Dry at 100°C for 4-6 hours
Nozzle	<ul style="list-style-type: none">• Use a hardened steel nozzle or higher grade• Size request: 0.4mm and above
Heating Block	At least 12mm thick for optimal temperature stability
Print Bed Surface Coating	Use a PEI sheet or apply a PVP glue coating on the print bed surface for better adhesion and to reduce warping

***Note*:**

- Only dry if filament shows signs of moisture.
- Drying is not required for the first unpacking unless the vacuum packing becomes damp.

Work Flow

Printing with Fibreheart PPA-CF

Nozzle Temperature	300-320°C
Recommended Nozzle Diameter	0.4-1.0mm (hardened steel nozzle preferred)
Recommended Build Surface	PEI or PVP glue coating
Build Plate Temperature	70-90°C
Cooling Fan Speed	OFF
Print Speed	30-120 mm/s
Max Extrusion Volumetric Speed	8-12 mm ³ /s at 300-320°C
Retraction Distance	1-3mm
Retraction Speed	1800-3600 mm/min



Moisture Management

- **Dry Environment:** Store the filament in a dry box with relative humidity below 15%.
- **Resealing:** Always reseal the filament packaging promptly after use to prevent moisture absorption.
- **Drying:** If the filament absorbs moisture, dry it in an oven at 100°C for 4-6 hours to avoid issues like oozing, bubbles, and rough surface finish.

Work Flow

Troubleshooting Common Issues

- **Moisture Absorption:**

Symptoms: Oozing, bubbles, rough surface finish. Solution: Ensure filament is stored in a dry box with humidity below 15%. If filament absorbs moisture, dry it in an oven at 100°C for 4-6 hours.

- **Stringing and Oozing:**

Symptoms: Fine strings of filament between parts of the print.

Solution: Adjust retraction settings to 1-3mm at 1800-3600 mm/min. Ensure the filament is dry and the nozzle temperature is not too high.

- **Surface Roughness:**

Symptoms: Rough or uneven surface finish.

Solution: Ensure filament is dry before printing. Adjust print speed and ensure consistent extrusion. Use a higher layer height if needed.

- **Warping**

Solution: Warping can occur due to the material cooling too quickly. To prevent this, maintain a consistent temperature environment around the printer, possibly using an enclosure to keep out drafts. Adjust the cooling fan settings to lower speeds or turn it off for the initial layers.