TECHNICAL DATA SHEET (TDS)

PP+ Filament

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1. Product Description

Fabbxible PP+ is an enhanced polypropylene-based 3D printing filament developed for producing lightweight, durable and chemically resistant functional parts. Compared with standard polypropylene, the modified PP+ formulation provides improved printability, layer adhesion and dimensional stability.

It is suitable for prototypes, living hinges, containers, automotive components, laboratory parts and other applications requiring flexibility, fatigue resistance and low moisture absorption.

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2. Key Features

- Lightweight material with a low density of approximately 0.91 g/cm³
- High impact resistance for durable functional components
- Excellent fatigue resistance for parts subjected to repeated bending
- Suitable for living hinges and flexible joints
- Good flexibility without behaving like a soft TPU
- Good resistance to water, moisture, acids, alkalis and many common chemicals
- Low moisture absorption
- Low-friction surface suitable for sliding or moving components
- Good electrical insulation properties
- Resistant to cracking and repeated mechanical stress
- Semi-matte, slightly translucent finish depending on colour

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3. Typical Applications

- Living hinges and repeatedly flexed joints
- Snap-fit connectors, clips and fasteners
- Lightweight functional prototypes

- Reusable containers, boxes and storage components
- Bottle holders, caps and closures
- Automotive interior components
- Protective covers and equipment housings
- Chemical-resistant laboratory accessories
- Low-friction guides, sliders and bushings
- Flexible brackets and mounting components
- Moisture-resistant outdoor parts
- Electrical insulation covers and enclosures
- Packaging prototypes
- Toys and sporting accessories
- Parts requiring impact resistance and repeated bending

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4. Typical Material Properties

(Values are typical and not for specification purposes)

Mechanical Properties

Property	Typical value*	Test method
Tensile strength at yield	14 MPa	ISO 527
Tensile strength at break	20 MPa	ISO 527
Tensile modulus	450 MPa	ISO 527
Elongation at yield	15%	ISO 527
Elongation at break	>300%	ISO 527
Flexural strength	16 MPa	ISO 178
Flexural modulus	400 MPa	ISO 178
Notched Izod impact strength, 23°C	30 kJ/m²	ISO 180
Charpy impact strength, 23°C	12 kJ/m²	ISO 179
Shore hardness	50 Shore D	ISO 868

Thermal Properties

Property	Typical value*	Test method
Melting temperature	135–165°C	ISO 11357 / DSC
Vicat softening temperature, 10 N	110°C	ISO 306
Heat deflection temperature at 0.45 MPa	75°C	ISO 75
Heat deflection temperature at 1.80 MPa	55°C	ISO 75
Glass-transition temperature	Approximately −10°C	ISO 11357 / DSC
Continuous service temperature	Up to 80°C	Internal evaluation
Short-term service temperature	Up to 100°C	Internal evaluation
Coefficient of linear thermal expansion	120×10^{-6}/K	ISO 11359
Thermal conductivity at 23°C	0.22 W/(m·K)	ISO 22007
Specific heat capacity at 23°C	1.8 kJ/(kg·K)	ISO 11357

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5. Printing Guidelines

- Nozzle Temperature: 235 °C
- Bed Temperature: 85 °C
- Cooling Fan: 10%
- Print Speed: 40 mm/s
- Layer Height: 0.1 – 0.2 mm

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6. Storage Conditions

- Store in a cool, dry environment
- Keep sealed with desiccant
- Recommended humidity: < 50% RH

7. Filament Specifications

Parameter	Specification
Diameter	1.75 mm ± 0.05 mm
Net Weight	0.8 kg
Density	0.91 g/cm³
Color	Black, White

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8. Compliance

- RoHS Compliant
- REACH Compliant

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9. Safety Information

- Ensure good ventilation during printing
- Avoid inhalation of fumes
- Refer to MSDS for detailed safety handling