



Technical Data Sheet

Filalab TPU 85A

Product Information

Product Name	Filalab TPU 85A
Chemical Name	Polyether-based thermoplastic polyurethane (TPU)
Diameter	1.75 ± 0.05 mm
Manufacturer	Filalab, Vilnius, Lithuania

General Description

TPU 85A is a flexible, high-performance thermoplastic polyurethane (TPU) filament designed for 3D printing applications requiring durability, elasticity, and impact resistance. With a **shore hardness of 85A**, this filament offers an excellent balance between flexibility and printability, making it suitable for functional prototypes, industrial components, and end-use parts.



Product Properties

Property	Test Method	Result
Hardness	ISO 7619	85A
Hardness	ISO 7619	33D
Tensile Strength	DIN 53504	40 MPa
Elongation @ break	DIN 53504	650 %
100% Modulus	53504	7.3 MPa
300% Modulus	53504	11 MPa
Tear Resistance	ISO 34-1	60 N/mm
Abrasion	ISO 4649	35 mm ³
Compression Set 70hrs @ 23°C	ISO 815	24 %
Compression Set 24hrs @ 70°C	ISO 815	42 %
Bayshore Rebound	-	38 %
Mold Shrinkage	ISO 294-4	0.8 %
Density	ISO 1183-1	1.11 g/cm ³
TMA Low	Huntsman	155 °C
TMA High	Huntsman	175 °C



Recommended Printing Settings

Nozzle Temperature	220-250°C (240°C for Bambu Lab printers)
Bed Temperature	35-60°C
Fan Speed	10-50%
Printing Speed	40-150 mm/s
Bed Type	Textured PEI Sheet, Smooth PEI Sheet
Optional Adhesives for Build Plate	Bambu Lab Glue Stick, Magigoo
Filament Drying Recommendations	Temperature: 45-60°C, Drying Time 6-12 hours

Safety Information:

Filalab TPU 85A Filament is non-toxic and safe for general use. However, ensure proper ventilation during printing to avoid inhaling any fumes that may be produced. Always consult the Safety Data Sheet (SDS) for more detailed safety guidelines.



Storage, Handling, and Drying Process:

TPU 85A filament is hygroscopic, meaning it readily absorbs moisture from the air. Excessive moisture can lead to printing defects such as bubbling, poor surface finish, and reduced layer adhesion. To ensure optimal print quality, proper storage and drying of Filalab TPU 85A Filament are essential.

Storage:

- **Environment:** Store in a cool, dry place away from direct sunlight and high humidity.
- **Sealing:** Keep the filament sealed in an airtight container with desiccant 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:** 45-60°C
- **Drying Duration:** 6-12 hours, depending on the level of moisture absorption
- **Drying Equipment:** Use a filament dryer, convection oven, or a food dehydrator with temperature control to remove moisture before printing.

After drying, immediately store the filament in an airtight container to prevent reabsorption of moisture during or between printing sessions.



Features:

- **Shore Hardness:** 85A – flexible yet firm enough for easy handling
- **High Elasticity:** Excellent elongation at break and tear resistance
- **Abrasion Resistance:** Ideal for wear-resistant applications
- **Chemical Resistance:** Good resistance to oils, greases, and various chemicals
- **Layer Adhesion:** Strong interlayer bonding for durable parts
- **Printability:** Optimized for direct drive extruders

Pros and Cons:

Pros:

- **High Flexibility & Elasticity** – Soft yet durable, allowing for excellent flexibility without permanent deformation.
- **Good Impact & Abrasion Resistance** – Withstands wear and tear, making it ideal for functional parts.
- **Chemical Resistance** – Resists oils, greases, and some solvents, enhancing durability in harsh environments.
- **Strong Layer Adhesion** – Produces tough, long-lasting prints with excellent interlayer bonding.
- **Shock & Vibration Absorption** – Great for damping applications such as mounts and protective covers.
- **Good Printability (for a Flexible Filament)** – Easier to print than softer TPUs (e.g., 70A)



Cons:

- **Requires a Direct Drive Extruder** – Bowden setups may struggle with feeding due to the filament's flexibility.
- **Prone to Stringing & Oozing** – TPU 85A tends to produce fine strings if retraction settings are not optimized.
- **Limited Structural Strength** – Not suitable for high-load applications due to its softness and flexibility.
- **Can Be Challenging for First-Time Users** – Requires fine-tuned print settings and experience with flexible filaments.