



# Technical Data Sheet

## Filalab COPA (NYLON)

### Product Information

Product Name	Filalab COPA
Chemical Name	Copolyamide
Diameter	1.75 ± 0.05 mm
Manufacturer	Filalab, Vilnius, Lithuania

### General Description:

Filalab COPA Filament is a high-performance nylon-based material designed for 3D printing applications that require exceptional mechanical strength, flexibility, and chemical resistance. COPA combines the advantages of various nylon types, offering reduced warping, improved printability, and enhanced toughness. It is ideal for functional prototypes, mechanical components, and parts subjected to wear and stress.



## Product Properties

Property	Test Method	Result
Density	DIN 53479	1.14 g/cm <sup>3</sup>
Melting Point	ISO 11357	188°C
Relative Viscosity (96% H <sub>2</sub> SO <sub>4</sub> )	JIS K6810	4,05
Tensile strength at yield	ISO 527-3	22 - 26 MPa
Tensile strength at break	ISO 527-3	120 - 140 MPa
Tensile elongation at break	ISO 527-3	500 - 520%
Tensile modulus	ISO 527-3	450 - 550 MPa
Tear resistance	ASTM D 1922	2,3 - 2,5 N
Puncture energy	JAS P-1019	38 - 40 mJ
Puncture deformation	JAS P-1019	10,5 - 11,5 mm
Spencer impact resistance	ASTM D 3420	850 - 950 mJ
Gloss	ASTM D 523	145 - 165%



## Recommended Printing Settings

Nozzle Temperature	260-300 °C (290 °C for Bambu Lab printers)
Bed Temperature	100 °C
Fan Speed	10-30%
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: 70 °C, Drying Time: 6-24 hours, Recommended printing while drying

## Safety Information:

Filalab COPA 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 typically minimal, avoiding prolonged exposure is advised. 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.



## Storage, Handling, and Drying Process:

COPA filament is very hygroscopic, meaning it absorbs moisture from the air. Proper storage and regular drying are essential to maintain optimal 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:** 70-80°C (158-176°F)
- **Drying Duration:** 6-8 hours
- **Drying Equipment:** Use a filament dryer, convection oven, or food dehydrator.

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



## Features:

- **High Strength and Toughness:** Ideal for functional parts and mechanical components.
- **Flexible:** Good flexibility while maintaining durability.
- **Chemical Resistance:** Resists oils, greases, and various chemicals.
- **Low Warping:** Improved printability with reduced warping compared to other nylons.

## Pros and Cons:

### Pros:

- **Strong and Tough:** Excellent mechanical properties for functional applications.
- **Flexible:** Offers flexibility with durability, reducing the risk of cracking.
- **Chemical Resistant:** Suitable for parts exposed to harsh chemicals.

### Cons:

- **Moisture-sensitive:** Requires careful storage and drying.
- **High Print Temperature:** Needs higher nozzle temperatures than standard filaments.
- **Moderate Warping:** Still requires controlled printing conditions, such as a heated bed and enclosure.