PROFESSIONAL LAB

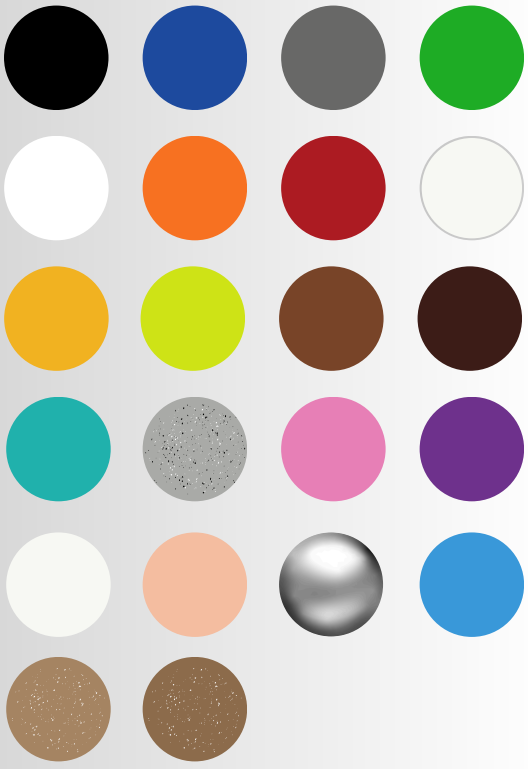
Technical Data Sheet

PLA

Product overview

PLA Professional Lab is a high-quality, biodegradable filament designed for precise and reliable 3D printing in professional and laboratory settings. Made from renewable plant-based resources such as corn and sugarcane, it offers an eco-friendly alternative without compromising performance. With a low shrinkage rate (1.5–2.5%) and a wide printing temperature range of 190–230°C, it is extremely user-friendly—even for beginners. The filament produces smooth surfaces and fine details, making it ideal for decorative models, collectible figures, and display components.

Available colors



Product features

Good thermal stability: the processing temperature generally ranges from 170 to 230 °C, allowing it to adapt to a variety of processing scenarios.

Excellent solvent resistance: it can be processed by various methods such as extrusion, spinning, biaxial stretching, injection blow molding, etc.

Fair Mechanical Properties: it has a certain degree of strength and toughness, and the finished products can meet a variety of usage requirements.

Other characteristics: it has good gloss, transparency, and handle. It also has certain antibacterial, flame-retardant, and UV-resistant properties. The films made from it have good barrier properties and can be used for soft packaging of fruits and vegetables to delay their senescence.

Good biocompatibility: it has no toxic or side effects on the human body and can be safely implanted into the body. The surface of the fibers made from it is weakly acidic, showing good compatibility and skin-friendliness with human skin, making it suitable for applications in the medical and textile fields.

Printing Recommendations

- Nozzle temperature: 180 - 220°C
- Build surface material: PEI, glass
- Build surface treatment: glue
- Build plate temperature: 40 - 60°C
- Cooling fan: turned on
- Printing speed: 30 - 70 mm/s
- Raft separation distance: 0.2 mm
- Retraction distance: 7 mm
- Retraction speed: 20 mm/s
- Environmental temperature: room temperature – 60°C
- Threshold overhang angle: 60°

Based on a 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters.

Drying recommendations

To ensure optimal printing performance and surface quality, it is recommended to dry PLA Professional Lab filament before use, especially if it has been exposed to ambient humidity. PLA is hygroscopic and can absorb moisture from the air, which may lead to issues such as stringing, bubbling, poor layer adhesion, or inconsistent extrusion.
Use a filament dryer or a convection oven with precise temperature control. Avoid using open heat sources or high temperatures that could deform the filament spool.
After drying, store the filament in a sealed container with desiccant to prevent moisture reabsorption. Regular drying is particularly important in humid environments or when using partially used spools.

Precautions

Avoid high temperatures: PLA has low heat resistance and may deform at temperatures above 60°C. Do not expose printed parts or filament spools to direct sunlight, heaters, or enclosed high-temperature environments.

Store properly: always store the filament in a dry, airtight container with desiccant. PLA is hygroscopic and absorbs moisture from the air, which can negatively affect print quality.

Ensure proper ventilation: although PLA is generally considered safe, always operate 3D printers in well-ventilated areas to avoid buildup of fumes or microparticles during extended printing sessions.

Use recommended printing settings: follow the manufacturer's suggested temperature and speed settings to prevent nozzle clogs, warping, or poor layer adhesion. Adjust settings gradually when experimenting.

Disclaimer of Liability

The typical values provided in this datasheet are for reference and comparison only. They should not be used as design specifications or for quality control. Actual values may vary depending on print conditions. The performance of printed parts depends not only on the material but also on design, environment, and print parameters.
Each user is responsible for evaluating the safety, legal compliance, technical suitability, and recycling/disposal of Professional Lab materials for their intended application. Professional Lab makes no warranty of any kind, unless stated otherwise, regarding the suitability for any specific use or application. Professional Lab is not liable for any damage, injury, or loss resulting from the use of materials. **The guidelines given in the card are indicative, always use the parameters given directly on the spool.**