

Product Overview

JR LAB PETG is a high-performance 3D printing filament developed through advanced material engineering to deliver an outstanding balance of strength, clarity, impact resistance, and versatility. Compared with standard PETG formulations, it offers improved toughness, higher temperature tolerance, and excellent chemical stability, ensuring smooth and reliable printing even under demanding conditions.

Its naturally glossy finish, high transparency, and vivid long-lasting colors make it ideal for both functional engineering parts and aesthetic applications. JR LAB PETG provides professional-quality results for hobbyists and experienced users alike, while remaining fully recyclable for more sustainable production.

Key Product Features

Superior Print Performance

Optimized for precision and reliability, JR LAB PETG offers smooth extrusion and excellent layer adhesion. It supports stable printing across a broad temperature window (230 – 260 °C), minimizing stringing and warping while producing a clean, glossy surface finish on both detailed and complex geometries.

Exceptional Strength & Versatility

Combining high tensile strength (50 – 70 MPa) with remarkable flexibility (elongation up to 300 %), the material delivers an ideal balance of rigidity and resilience. Printed parts retain their shape under repeated stress, making them suitable for functional components, impact-resistant prototypes, and end-use mechanical parts.

Thermal & Chemical Resistance

JR LAB PETG maintains dimensional stability under moderate heat (70 – 85 °C under 0.45 MPa) and exhibits strong resistance to a wide range of chemicals including acids, alkalis, alcohols, and oils. This durability ensures dependable long-term performance in demanding environments.

Visual Clarity & Environmental Responsibility

With outstanding transparency (88 – 92 % light transmission) and a naturally glossy surface, it is perfect for clear containers, display elements, light guides, and visually refined models. As a recyclable material, JR LAB PETG supports eco-friendly production practices without compromising professional quality.

Printing Guidelines

Based on a 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters. A heated bed and consistent extrusion control are recommended for optimal results.

Parameter	Recommended Value
Nozzle temperature	230 – 250 °C (up to 260 °C)
Build plate temperature	80 – 90 °C (60 – 80 °C possible)
Build surface	PEI or glass + glue
Cooling fan	70% (enable after first 2–3 layers)
Printing speed	30 – 70 mm/s (ideal 40 – 60 mm/s)
Retraction distance	7 mm
Retraction speed	20 mm/s
Raft separation distance	0.2 mm
Environmental temperature	Room temperature – 60 °C
Threshold overhang angle	~60 °

Drying Guidelines

PETG naturally absorbs moisture from the air. Excess humidity causes bubbling, stringing, poor layer bonding, and surface defects. For optimal performance, dry the filament before use:

- **Drying temperature:** 70 – 85 °C
- **Duration:** 4 – 8 hours (check after 4 hours and extend if necessary)
- Prefer a dedicated filament dryer for consistent results. A kitchen oven may be used if carefully monitored.
- After drying, use the filament immediately or store it in a sealed bag/container with desiccant to prevent reabsorption.

Precautions & Best Practices

Printer Compatibility

JR LAB PETG performs optimally on standard FDM printers equipped with a heated bed and reliable extrusion control. Ensure your printer can maintain stable temperatures in the recommended range. Variations in nozzle diameter, temperature calibration, or feeding systems may affect print quality and can lead to clogs or uneven flow if not properly adjusted.

Temperature & Shrinkage Control

Maintain nozzle temperature between 230 – 250 °C for proper flow and adhesion. Too low a temperature causes poor fluidity, clogging, or under-extrusion; too high can degrade the material, producing bubbles or discoloration. Keep the build plate at 60 – 90 °C to improve first-layer adhesion and reduce warping.

Cooling Settings

Enable the cooling fan after the first 2 – 3 layers to help the material solidify evenly and reduce deformation. Avoid excessive or rapid cooling, especially on complex or overhanging geometries, as this can create internal stress and lead to cracking or warping. Adjust fan speed gradually according to model geometry.

Printing Speed Recommendations

A medium printing speed of 40 – 60 mm/s is generally ideal. Excessively high speeds may not allow sufficient cooling, causing deformation or stringing. Very slow speeds increase print time and can lead to nozzle residence-time issues.

Filament Storage

Store JR LAB PETG in a cool, dry, airtight environment protected from humidity and direct sunlight. Reseal unused spools with desiccant after each use to preserve print quality and material longevity. High-quality filament with uniform diameter and minimal impurities reduces printing problems significantly.



Disclaimer of Liability

The data and values presented in this Technical Data Sheet are intended solely for reference and comparison purposes. They should not be considered precise design specifications or used for formal quality control. Actual results may vary depending on print settings, model geometry, environmental conditions, and printer configuration.

The performance and durability of printed parts depend on multiple factors including material characteristics, printer setup, and the final application environment. Users are fully responsible for assessing the safety, regulatory compliance, technical suitability, and end-of-life handling (recycling or disposal) of JR LAB PETG materials for their specific applications.

JR LAB makes no warranties, express or implied, regarding the suitability of this product for any particular use unless otherwise stated in writing. The company assumes no liability for any loss, damage, or injury arising from material use. For optimal results, always follow the printing parameters specified on the filament spool rather than relying solely on this datasheet.

JR LAB — Bringing Imagination to Life

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