ESUN 3D FILAMENT CATALOG & TDS

Product Descriptions & Technical Data Sheets

Document Ref: **TDS-ESUN-2026-V1**
Filament Spec: **1.75mm Lineup**
Status: **Official Specifications**

PRODUCT DESCRIPTIONS & MARKETING SHEETS

eSUN PLA Basic 1.75mm – Reliable, High-Speed Performance

The essential workhorse for every 3D printing setup. eSUN PLA Basic is engineered for creators who prioritize consistency and ease of use. Modified for modern high-speed machines, this filament delivers a smooth, glossy finish with incredible dimensional accuracy, making it the perfect "go-to" material for everything from rapid prototyping to detailed display models.

- **Optimized for High Speed:** Specially formulated to keep up with high-speed printers (like Bambu Lab, Creality K1, and AnkerMake series), supporting speeds up to 300mm/s without sacrificing surface quality.
- **Easy to Print:** Features excellent fluid flow and minimal shrinkage, virtually eliminating warping and making it compatible with almost any FDM printer on the market.
- **Tangle-Free Technology:** Utilizes eSUN's precision neat-winding process to ensure the filament is laid perfectly on the spool, preventing mid-print jams and snags.
- **Smooth Glossy Finish:** Produces prints with a vibrant, clean sheen that highlights fine details and gives your models a polished, professional look.
- **Eco-Friendly & Safe:** Made from corn-based biodegradable raw materials. It is low-odor and safe for use, making it ideal for home, classroom, and office environments.

> **Pro Tip:** While PLA Basic is very forgiving, using a cooling fan at 100% will help achieve the sharpest details and cleanest overhangs on your models!

eSUN PLA Wood 1.75mm – Natural Finish, Real Wood Texture

The perfect choice for organic, rustic, and artisan 3D prints. eSUN PLA Wood is formulated with a blend of active foaming technology and real wood fibers in a PLA matrix. This filament delivers the authentic look, feel, and subtle scent of natural wood, providing a beautiful matte finish that hides layer lines while keeping the effortless printability of standard PLA.

- **Authentic Wood Texture:** Incorporates actual wood fibers to produce a low-gloss, lightweight, matte finish with an organic wood grain appearance.
- **Stainable & Workable:** Can be sanded, carved, painted, stained, or varnished using standard woodworking post-processing techniques to achieve custom wood tones.
- **Temperature Color Shading:** Adjusting your print temperature slightly alters the shade—lower temperatures produce lighter wood tones, while higher temperatures yield darker, richer tones.
- **Smooth Flow & Low Warping:** Engineered for reliable extrusion with low thermal expansion, ensuring minimal warping and strong bed adhesion.
- **Eco-Friendly Material:** Built on a biodegradable corn-based PLA foundation, offering a low-odor, environmentally conscious solution for creative projects.

> **Pro Tip:** For optimal flow and to avoid clogs from particle buildup, use a 0.6mm brass or hardened steel nozzle rather than the standard 0.4mm nozzle!

eSUN PLA Clear Rainbow 1.75mm – Vibrant Translucent, Dynamic Color Transitions

Bring your prints to life with brilliant light transmission and smooth color shifts. eSUN PLA Clear Rainbow combines high-transparency PLA with a multi-tone gradient effect. Designed to produce a smooth transition through a spectrum of vibrant, semi-transparent colors within a single spool, it creates stunning visual depth and light-catching effects on every model.

- **Translucent Rainbow Shift:** Features a continuous, smooth transition between multiple vibrant transparent colors, delivering a distinct visual effect on medium-to-large prints.
- **High Optical Clarity:** Offers excellent light permeability and a glossy surface finish, allowing light to shine through hollow or thin-walled models.
- **High-Speed Compatible:** Formulated with great melt-flow behavior, making it suitable for modern high-speed printers while maintaining strong layer adhesion.
- **Easy to Print:** Delivers minimal shrinkage and low warping characteristics, ensuring consistent first-layer adhesion across standard FDM machines.
- **Neat Winding Process:** Precision-spooled using eSUN's anti-tangle technology to prevent snags and misfeeds during long multi-color prints.

> **Pro Tip:** Print with thicker perimeters or in "Spiral Outer Contour" (Vase Mode) to maximize light transmission and showcase the transparent rainbow effect!

TECHNICAL DATA SHEETS (TDS) & PHYSICAL PROPERTIES

PHYSICAL & THERMAL PROPERTIES	
Physical Property	**Standard / Value**
Filament Diameter	1.75 mm (± 0.03 mm)
Density (PLA Basic)	1.24 g/cm³
Density (PLA Wood)	0.7 – 0.9 g/cm³ (Foamed)
Density (PLA Clear Rainbow)	1.20 – 1.25 g/cm³
Melt Flow Index (MFI)	5 – 12 g/10 min (190°C/2.16kg)
Heat Distortion Temp (HDT)	50°C – 55°C (0.45 MPa)

MECHANICAL STRENGTH PARAMETERS	
Mechanical Metric	**Testing Standard / Value**
Tensile Strength	60 – 65 MPa (ASTM D638)
Elongation at Break	12% – 20%
Flexural Strength	75 – 85 MPa (ASTM D790)
Flexural Modulus	2500 – 2800 MPa
IZOD Impact Strength	4 – 6 kJ/m² (GB/T 1843)
Layer Adhesion	High Structural Adhesion

FILAMENT VARIANT	NOZZLE TEMP	BED TEMP	PRINT SPEED	REC. NOZZLE SIZE	DRYING SPEC
eSUN PLA Basic	190°C – 230°C	45°C – 60°C	50 – 300 mm/s	0.4 mm	50°C for 4 hours
eSUN PLA Wood	190°C – 225°C	45°C – 65°C	30 – 60 mm/s	0.6 mm (Hardened/ Brass)	55°C for 6+ hours
eSUN PLA Clear Rainbow	190°C – 220°C	45°C – 60°C	40 – 150 mm/s	0.4 mm	50°C for 4 hours