



OVERVIEW

At Lubrizol Engineered Polymers, we are a team of scientists, innovators and creators who are passionate about finding solutions for emerging needs and global challenges. Every day, we progress our sustainability journey – reducing our environmental impact and working with our customers and suppliers to enhance sustainability throughout our value chains.

Our Engineered Polymers' innovations include sustainable materials that improve the performance (for e.g., Bio TPU™ that shows low density in footwear) and aesthetics of our customers' products across a wide range of consumer and industrial applications: from performance apparel to hoses or 3D printing parts.

Thermoplastic polyurethane (TPU) is a very versatile and durable material. Life-cycle assessments have been used to quantify the environmental benefits of some of our solutions. Latest developments include ESTANE® RNW and ESTANE PIR TPUs: a polymer containing renewable feedstock and a material that originates from the use of post industrial scrap, respectively.



APPLICATIONS

- **Industrial:** Hoses, timing belts, automotive interior parts, textile coatings, formulations of reactive polyurethane hot melts (HMPUR or RHM), and 3D printed parts
- **Sports & Recreation:** Footwear, goggles, watchbands, and sports equipment
- **Electronics:** Smartphones, headphones, and consumer goods and appliances
- **Various molded parts and overmolded grips**

AVAILABLE SOLUTIONS

SUSTAINABLE SOLUTION	DESCRIPTION
ESTANE® ECO TPU	Bio TPU™ product series applied in extrusion, molding and over molding processes with biobased content ranging from 20 to 69*% according to ASTM D-6866.
ESTANE® PIR 1T90A01 TPU	Polyether-based specialty TPU grade based on post industrial recycled material originating from the use of post industrial scrap through our partner network.
ESTANE® RNW 1T88A01 TPU	Polyether-based specialty TPU grade comprising 50% of fossil fuel reduction according to biomass balanced calculations. Enables an approximate** 21% carbon footprint reduction when compared to standard ESTANE TPU.
ESTANE® 3D F95A-030 BR ECO TPU	Lubrizol's Bio TPU resin for additive manufacturing, used for fused filament fabrication with a broad 3D printing window.
PEARLBOND™ ECO TPU	Lubrizol's 67% renewable-content Bio TPU for HMPUR formulations to improve crystallization speed and for HMAs in heat sealable fabrics and in toe puffs and counters.

*This maximum value corresponds to a new development.

**This value is based on the LCA analysis performed.

TPU is recyclable* and can also improve the recyclability ratio of other polymers.



Lubrizol's commitment to find environmentally responsible, sustainable solutions for our customers, employees and communities is part of everything we do. We are open to new opportunities and collaborating with our customers and partners to develop more sustainable solutions. Lubrizol Engineered Polymers uses sustainability as a strategic capability to build a differentiated best-in-class specialty chemical business.

Learn more about our existing sustainable solutions by watching our video on this web page:
go.lubrizol.com/SustainabilityEP

*Recyclability is based on access to a readily available standard recycling program that supports such materials. Products may not be available in all areas.

**LUBRIZOL
ENGINEERED
POLYMERS**

**ADVANCING MATERIALS.
ELEVATING PERFORMANCE.**

