

**LUBRIZOL**  
ENGINEERED  
POLYMERS

**ADVANCING MATERIALS  
ELEVATING SOLUTIONS.**

Lubrizol TPU is recyclable\* and can also improve the recyclability ratio of other polymers, for instance, some synthetic textiles.



As one of the world's largest producers of specialty thermoplastic polyurethane (TPU), Lubrizol offers an extensive portfolio of durable, chemically resistant resins which include bio-based TPUs. Our products are suitable for a wide range of industries and product applications.

Our Engineered Polymers technical teams continue to lead the way in sustainability, developing solutions for emerging needs and global challenges. Our goal is to reduce our environmental impact while working with our customers and suppliers to enhance sustainability throughout our value chains.

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



**LOCALLY PRESENT  
GLOBALLY NETWORKED**

With local sales and technical support, R&D and manufacturing centers of excellence in each region, and a well-networked global supply chain, we offer a convenient, single source of reliable solutions for customers across the world.

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Learn more about our existing sustainable solutions by watching our video at [www.lubrizol.com/Engineered-Polymers/Sustainability](http://www.lubrizol.com/Engineered-Polymers/Sustainability)

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**SUSTAINABLE  
POLYMER  
SOLUTIONS**

**LUBRIZOL**  
ENGINEERED  
POLYMERS

**ADVANCING MATERIALS.  
ELEVATING PERFORMANCE.**



# ESTANE® ECO BIO-BASED SERIES

ESTANE® ECO bio-based series is very versatile and can be applied in a world of applications from footwear to industrial parts.



At Lubrizol, we are committed to developing environmentally responsible, sustainable solutions for our customers, employees and communities. We are always seeking new opportunities to expand our impact and are eager to collaborate with our customers and partners on new applications.

# THREE ENGINEERED POLYMERS SUSTAINABLE SOLUTIONS



**ESTANE® PIR TPU**  
Our customized high-performing post-industrial recycled (PIR) materials are backed by Lubrizol's technical expertise, value chain partners and certified product data. All of which are designed to enable your circularity.



**ESTANE® RNW TPU**  
ESTANE® RNW TPU portfolio offers biomass balance versions of several standard product grades. These materials provide the same high quality and performance while using bio and/ or biomass balanced feedstocks.



**BIO TPU**  
ESTANE® ECO and PEARLBOND ECO bio-based TPUs enable sustainably driven product design without compromising on material quality and performance.



Lubrizol Engineered Polymers are designed to improve the performance and aesthetics of products across a wide range of consumer and industrial applications -- from performance apparel to footwear to hoses and beyond. More recently, our polymers have been used in EV charging system cables, electronics and 3D printing. The possibilities are virtually endless.

SUSTAINABLE SOLUTION	DESCRIPTION
ESTANE® ECO TPU	Bio TPU™ product series applied in extrusion, molding and coextrusion processes with bio-based content ranging from 20 to 69*% according to ASTM D6866.
ESTANE® PIR** TPU	Specialty TPU that comes from Post Industrial Recycled material originating from the use of post-industrial scrap through our partner network. Formulated to be used in high performing applications.
ESTANE® RNW TPU	Specialty TPU, with the same performance as our ESTANE TPU, but with bio carbon attribution.
ESTANE® 3D TPU F95A-030 BR ECO TPU	Lubrizol's Bio TPU resin for additive manufacturing grade used for fused filament fabrication with a broad 3D printing window.
Pearlbond™ ECO TPU	Part of Lubrizol's Bio TPU product family with renewable material content (67%) and very high thermoplasticity. It is added to HMPUR formulations to improve crystallization speed and is also used for hot melt adhesives in heat sealable fabrics and in toe puffs and counters.

\*This maximum value corresponds to a new development.  
\*\*This is defined as the result of a recovery operation or of a reprocessing of byproducts as described in the CPA Guidance on waste definitions. It does not necessarily contribute to recycled content claims. Please contact your sales manager representative for more details.