Performance is in our nature.
Susterra® Propanediol for Elastomers

Susterra® propanediol is the building block that delivers high performance in a variety of applications, from cast parts and thermoplastic polyurethanes (TPUs) to molded and extruded thermoplastic urethanes. Made from renewably sourced materials and certified 100% bio-based by the USDA, Susterra® propanediol offers enhanced processing with shorter demolding times, improved flexibility and excellent overmolding adhesion versus traditional chain extenders for TPUs where the hardness is less than 70%.

How it’s made

Susterra® propanediol is manufactured through a proprietary fermentation process using plant-derived glucose instead of petroleum-based feedstocks. The resulting product is 99.7% pure.

The greener alternative

From “cradle-to-gate” (extraction and production prior to delivery to the consumer), Susterra® propanediol produces 56% less greenhouse gas emissions and consumes 42% less nonrenewable energy than petroleum-based 1,3-propanediol. Compared with BDO, Susterra® propanediol produces 52% less greenhouse gas emissions and uses 32% less nonrenewable energy from cradle-to-gate.

DuPont Tate & Lyle Bio Products bio-based 1,3-propanediol LCA data based on Loudon process design data.
**How it performs**

**Enhanced processing with shorter molding times**
In studies, Susterra® propanediol was evaluated against traditional chain extenders as a polyester TPU for a molding application. The TPU samples with Susterra® propanediol demonstrated faster molding times, which may lead to cycle time improvements for TPU manufacturers and cost savings for brand owners.

**Improved flexibility**
TPUs with Susterra® propanediol exhibited excellent low-temperature flexibility when compared to butanediol- (BDO-) based TPU samples.

**Excellent overmolding adhesion**
Samples were molded with a polycarbonate substrate and peeled apart. Adhesion on the samples using BDO was inconsistent while the higher melting temperature (Tm) of the Susterra® propanediol samples led to better adhesion.

As the hardness of the TPU decreases and PDO is used as the chain extender, the Tm increases.

For TPUs of the same hardness, the higher Tm will lead to better adhesion during over-molding.

Peel strength was tested with a polycarbonate substrate.
DuPont Tate & Lyle Bio Products Company, LLC, is a joint venture between DuPont, a global science innovator, and Tate & Lyle, a world-leading specialty ingredients and solutions company. DuPont Tate & Lyle Bio Products provides natural and renewably sourced ingredients that enhance product performance. We offer solutions for a wide variety of markets and applications through our bio-based performance brands, Susterra® and Zemea®. For more information, visit www.susterra-performs.com.