Performance is in our nature.
DuPont Tate & Lyle Bio Products—
A blueprint for success

Our production facility is a blueprint for successful innovation in industrial biotechnology. It brings together the best of two organizations to create a first-to-market process and product that continue to demonstrate versatility and functionality in the global marketplace. Our success has inspired the academic and industrial science communities around the world to invest in industrial biotech.

We have applied the tools of modern biotechnology to enable high-performance products that enhance people’s lives, protect the environment and reduce the world’s dependence on petroleum.

Our mission
To provide customers with a competitive advantage by offering improved, higher-performing ingredients from a petroleum-free, sustainable and renewable source.

Our process

**Harvest**
U.S.-grown field (yellow dent) corn is harvested, dried and transported to Loudon, Tenn., for processing.

**Wet Milling**
Corn is separated into its four basic units: starch, germ, fiber and protein. The glucose derived from starch is the raw material for making 1,3-propanediol.

**Microorganism**
The process begins with a culture of a patented microorganism in a small flask with glucose. As it grows, it is transferred to a seed fermenter and then a production fermenter.

**Fermentation**
Under exact temperature and conditions, the patented microorganism functions as a biocatalyst, converting glucose into bio-based 1,3-propanediol.

**Filtration**
The resulting product is filtered to remove the deactivated microorganisms, unfermented glucose and excess water.

**Ion Exchange**
After separation, the product is passed through a bed of charged resin that attracts and removes residual salts.

**Distillation**
The product is steam distilled to its highly purified state, removing any trace impurities.

**Final QC Check**
The resulting material—highly purified, bio-based 1,3-propanediol—is checked against product specifications.

**Load-out**
Bio-based 1,3-propanediol is ready for use in a variety of high-performance applications and packaged for shipment to our customers.
Clearly better

DuPont Tate & Lyle Bio Products provides solutions for a wide variety of markets and applications through our bio-based performance brands Susterra® and Zemea® propanediol, along with Bio-PDO™, the key ingredient in DuPont™ Sorona® high-performance polymers.

The unique benefits of Sorona® include fade resistance, stretch and suitability in blends, making it the fiber of choice for high-performance textiles.

Thousands of cosmetics and personal care products around the world incorporate Zemea® propanediol as a skin-friendly, preservative-boosting humectant.

Innovative foams made with Susterra® propanediol strike a balance between strength, cushioning and high energy return for lightweight, high-performance footwear.
Carpet
Cosmetics and personal care
Food and flavors
Laundry and household cleaning
Pharmaceutical and dietary supplements
Unsaturated polyester resins
Polyurethanes
Heat-transfer fluids
Apparel
Automotive textiles
Our performance

DUPONT™ SORONA®

zmeeam bio-based performance

susterra bio-based performance

Automotive textiles
Carpet

Apparel
Food and flavors

Cosmetics and personal care

Pharmaceutical and dietary supplements

Unsaturated polyester resins
Polyurethanes

Laundry and household cleaning

Heat-transfer fluids

Our performance
“The increased development, purchase and use of bio-based products reduces our nation’s reliance on petroleum, increases the use of renewable agricultural resources and contributes to reducing adverse environmental and health impacts.”

– USDA BioPreferred Program

The U.S. Department of Agriculture has certified Susterra® and Zemea® as 100% bio-based under its BioPreferred® program.

Our joint venture has also received the following awards:

2010 State of Tennessee Governor’s Award for Trade Excellence
2009 ACS BIOT Industrial Biotechnology Award
2007 ACS Heroes of Chemistry Award
2003 EPA Presidential Green Chemistry Award
The greener alternative

From “cradle-to-gate,” bio-based 1,3-propanediol produces 56% less greenhouse gas emissions and consumes 42% less nonrenewable energy than petroleum-based 1,3-propanediol. Compared with propylene glycol (PG), bio-based 1,3-propanediol produces 42% less greenhouse gas emissions and uses 38% less nonrenewable energy from cradle-to-gate. Compared with butanediol (BDO), bio-based 1,3-propanediol produces 52% less greenhouse gas emissions and uses 32% less nonrenewable energy from cradle-to-gate.

At full capacity, our process saves enough nonrenewable energy to power 1 million 100W incandescent lightbulbs for one year.
About DuPont Tate & Lyle Bio Products

DuPont Tate & Lyle Bio Products Company, LLC, is a joint venture between DuPont, a global science company, 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.

For more information, visit www.duponttateandlyle.com

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