

COVATIONBIO|PDOTM

PERFORMANCE
IS IN OUR
NATURE.



COVATIONBIO™ PDO-BRINGING ECO-EFFICIENCY TO THE GLOBAL MARKETPLACE

Our headquarters and world-class manufacturing facility is located in Loudon, Tennessee, USA. We are the largest global producer of 100% plant-based 1,3-propanediol. Marketing and sales personnel are located around the world to support a global distribution network.

Our success has inspired the academic and industrial science communities around the world to invest in industrial biotech. The high-performance products we enable 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

Renewably sourced, U.S.-grown 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 temperatures 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

CovationBio™ PDO provides solutions for a wide variety of markets and applications through our bio-based performance brands Susterra® propanediol (1,3-propanediol or PDO) and Zemea® propanediol, along with Bio-PDO™, the key ingredient in Sorona® high-performance polymers.



Sorona® answers the global call for sustainably sourced fabrics, bridging the personal and societal at a defining moment in our ecological stewardship. Sorona® fabrics are ideal for fashioning attractive, high-performance apparel and soft, durable carpet.



Zemea® propanediol is a biodegradable material that helps brands reach sustainability goals without compromising quality. Available in multiple formulations, Zemea® meets exacting standards in a variety of high-volume markets, from personal care and home care to pharmaceuticals to enhancing flavors and foods.



Susterra® propanediol is a 100% plant-based building block that reduces the need for petroleum-based components. Applications range from footwear to outdoor apparel, coatings, inks and functional fluids that benefit from favorable viscosity and thermal stability.





APPAREL | AUTOMOTIVE TEXTILES | CARPET



COSMETICS AND PERSONAL CARE | FOOD AND FLAVORS

PHARMACEUTICAL AND DIETARY SUPPLEMENTS

LAUNDRY AND HOUSEHOLD CLEANING



FOOTWEAR | FAUX LEATHER | HEAT TRANSFER FLUIDS

COATINGS | OUTDOOR APPAREL | GEAR AND ACCESSORIES

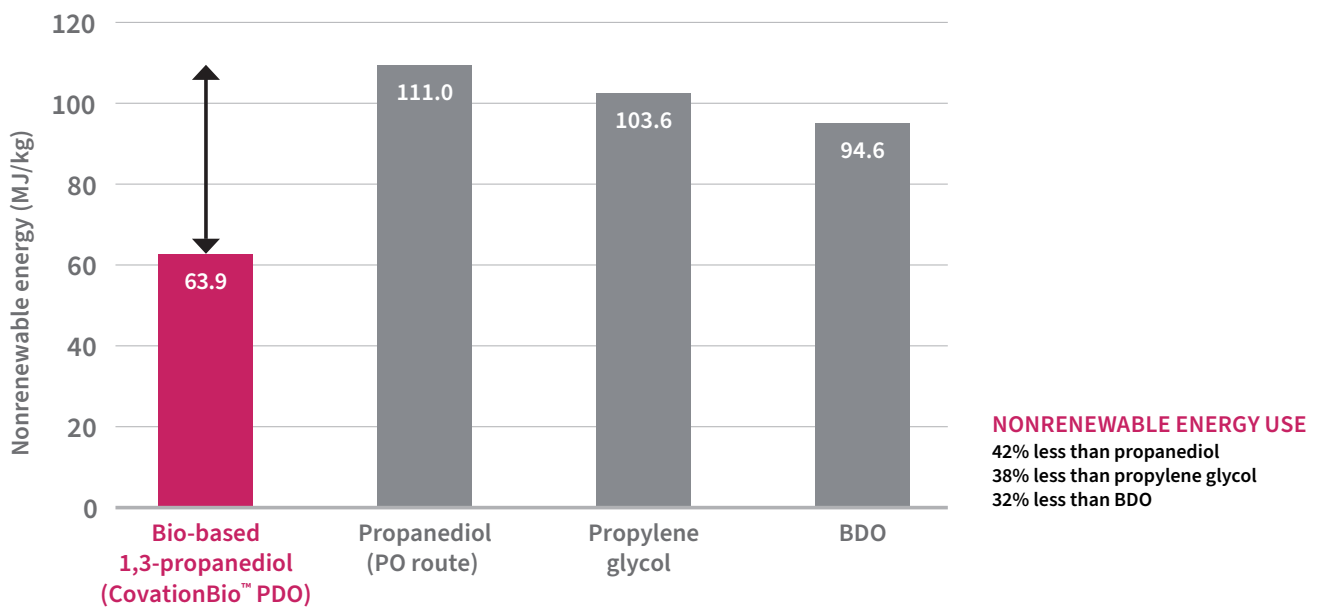
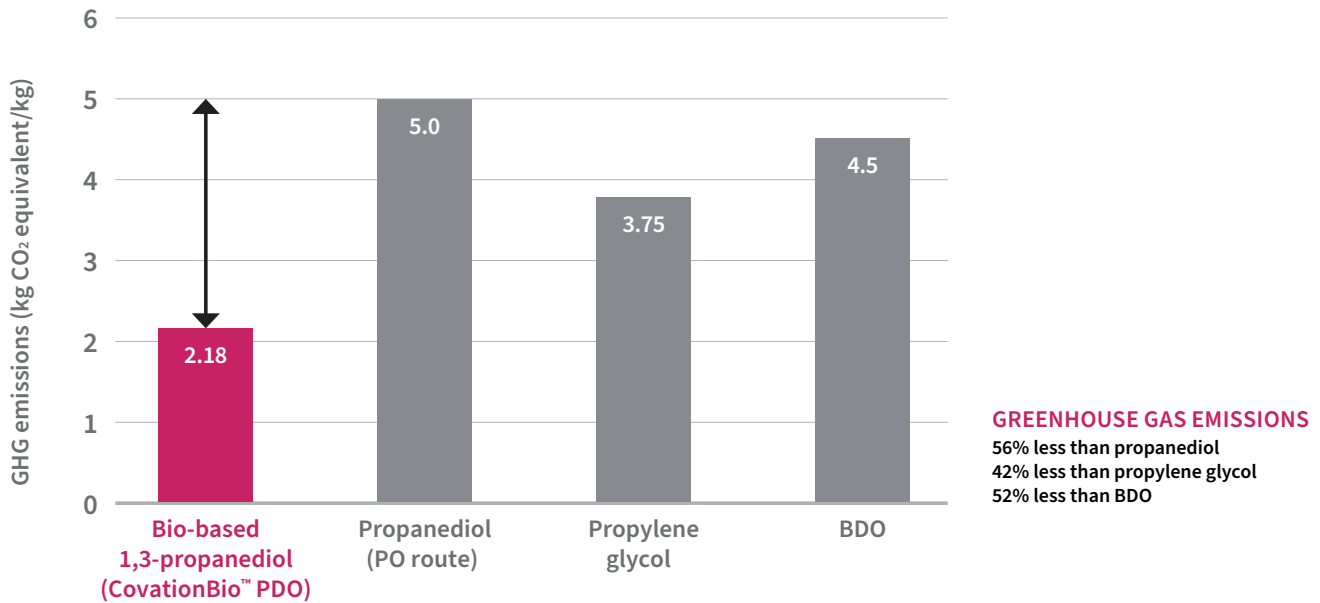
AUTOMOTIVE INTERIORS | DATA CENTER COOLING





THE GREENER CHOICE

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 REDUCES GREENHOUSE GAS EMISSIONS EQUIVALENT TO REMOVING 36,000 PASSENGER CARS FROM THE ROAD FOR ONE YEAR.



AT FULL CAPACITY, OUR PROCESS SAVES ENOUGH NONRENEWABLE ENERGY TO POWER 1.3 MILLION 100W INCANDESCENT LIGHTBULBS FOR ONE YEAR.





**“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® PDO AND
ZEMEA® PDO AS 100% BIO-BASED
UNDER ITS BIOPREFERRED® PROGRAM.**

**COVATIONBIO™ PDO HAS BEEN RECOGNIZED BY A
NUMBER OF ORGANIZATIONS AND GOVERNMENT AGENCIES:**

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

ABOUT COVATIONBIO™ PDO

Combining decades of world-class science and engineering expertise with new investment and manufacturing capabilities, CovationBio™ PDO is creating the sustainable building blocks for innovative, high-performance, bio-based products globally. For more information, visit CovationBioPDO.com.

COVATIONBIO|PDO

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