

# 2020 Webinar Series

Hosted by South Shore Clean Cities & Wisconsin Clean Cities

## Biobased Engine Oil & Fleet Product Options



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Biosynthetic Technologies is a US based innovative company.  
Dedicated to providing BIO-based alternative to petroleum products.



**WHERE SUSTAINABILITY AND  
PERFORMANCE CONVERGE**

### **Our Vision**

To deliver Innovative Solutions for a Sustainable Future.

### **Our Mission**

To be the Premier Synthetic Base Fluid Supplier Across a  
Variety of Specialty Markets.



## *After Almost a Decade, Biosynthetic® Technologies Has Been Repositioned for Commercial Success*

- **Vision** - To deliver Innovative Solutions for a Sustainable Future.
- **Mission** - To be the Premier Synthetic Base Fluid Supplier Across a Variety of Specialty Markets.
- Stand-alone & independent entity
- Supportive & near-adjacent investors
- Employee engagement & ownership
- Providing solutions to long-time biobased issues





## *What are Prevalent Industry Challenges and Driving Forces?*

- **Lubricant Leaks and Spills**
  - Difficult to prevent
  - Unplanned, sudden
  - Must be fixed, cleaned up
  
- **Consequences of Spills**
  - Lost productivity
  - Costly remediation, fines
  - Damage to environment
  - Negative community PR



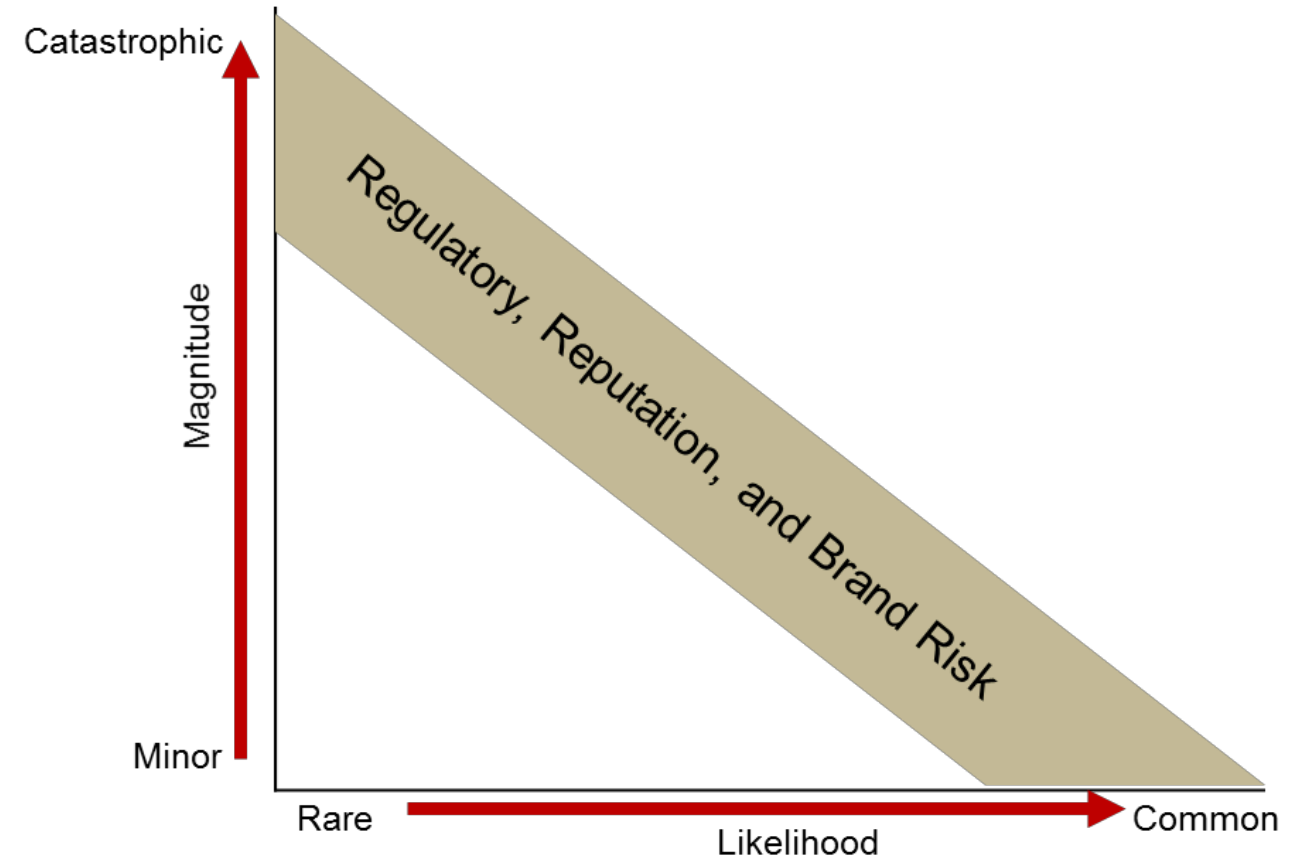
# Risk Exposure from the Extraordinary and the Everyday



Big spills get more coverage



Small spills can be more damaging



“Keep me out of the headlines”

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## *Biolubes Can Help*





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## *Biolubes Have Been Used Since the Dawn of Time*



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*But Only Recently Have Biolubes Been Able To Withstand The Tortures And Extremes Of Modern Applications.*

- Oxidative and Thermal Stability
- Wear Protection
- Long Term Durability Testing
- Wet and Dry Testing
- Frequent Retest Requirements
- Component Review





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## *Biobased Technology Has Also Changed We're Better and Smarter 😊*

- Improved Formulation
  - Specifically designed for equipment
  - Extensive testing
- Improved Compatibility
  - Components
  - Contamination
- Improved Application
  - The right product for the right application
- OEM Approved
  - Years of field proven performance



## More People Are Setting Higher Goals for Sustainability

- Sustainability Goal #1 Renewable
- Sustainability Goal #2 Safe for the Environment
- Sustainability Goal #3 Performance
- Sustainability Goal #4 Cost
- *Carbon Footprint*
- *Lifecycle Assessment*
- *Social Impact*
- *Economic Impact*



### *Products with High Bio-content*

*High Bio-degradability, Low Toxicity, Low Bio-accumulation*

*Must be equal or better than Petroleum based products*

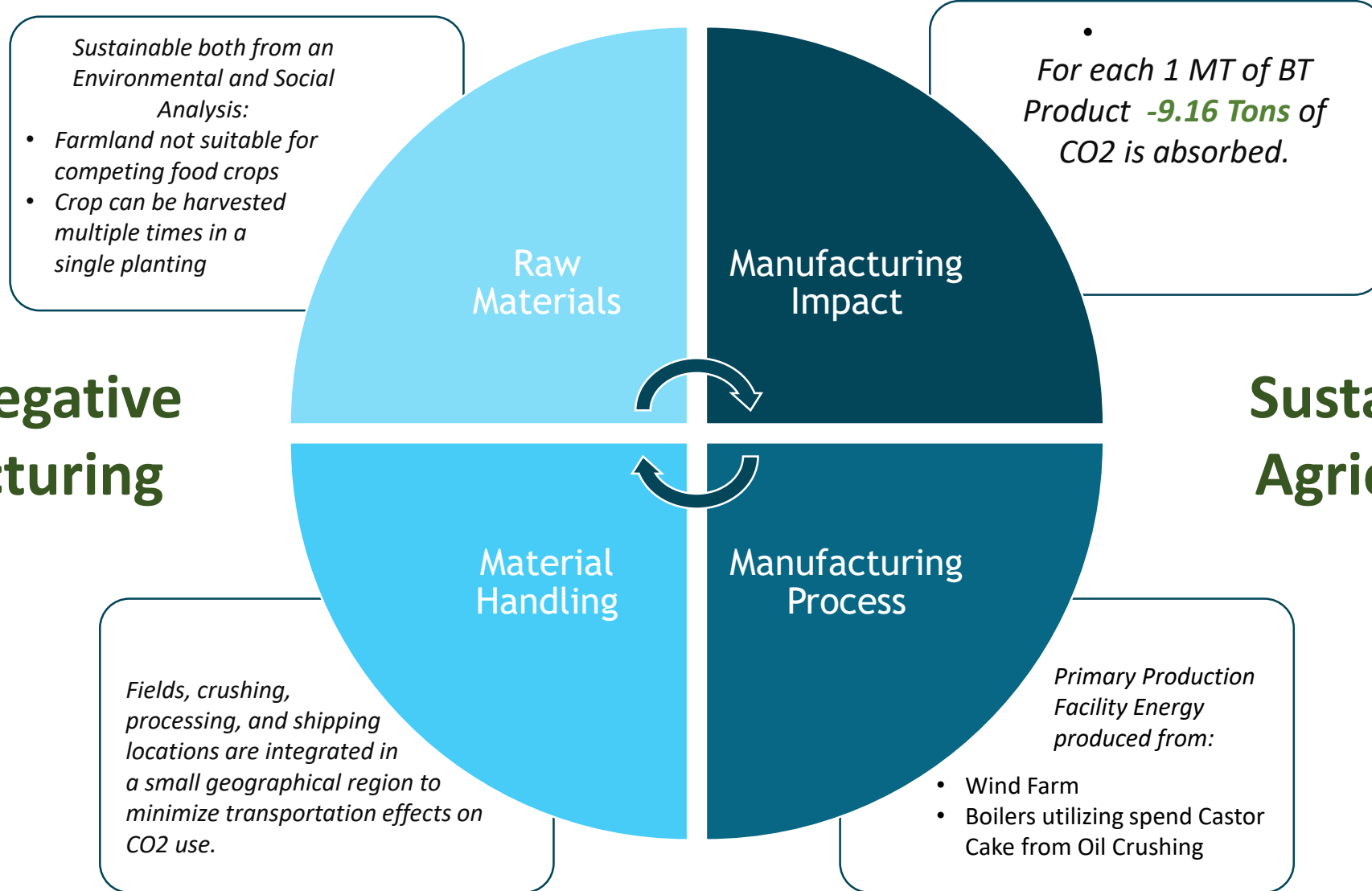
*Comparable Price Points*



# We Believe in Circular Sustainability

## Carbon Negative Manufacturing

## Sustainable Agriculture



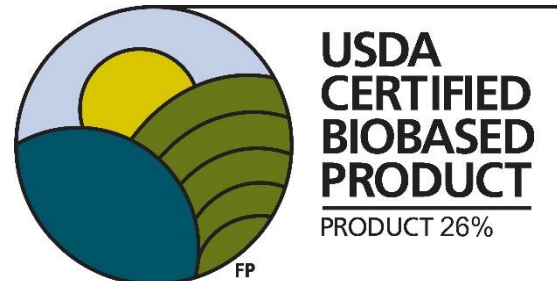
## Sustainable Economically

Lifecycle study conducted by Gujarat Agriculture University, Dantiwada and Kadam Environmental consultancy laboratory, Baroda, India. A full life cycle assessment report can be delivered upon request for CO<sub>2</sub>, Water, NO<sub>x</sub>, SO<sub>x</sub>, COD, and TDS impacts from production.



## *There are Many Eco Label Specifications*

- VGP 2013 US EPA
- USDA Biopreferred
- CEN TC19 WG 33
- Ecolabel EU
- Nordic Swan
- German Blue Angel
- Japan Eco Marek no. 110
- OSPAR North Sea



LuSC-  
List

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## *ISO 6743/4 Environmental Fluids Classifications:*

- Hydraulic Environmental Triglycerides (**HETG**)
- Hydraulic Environmental Polyalkylene Glycols (**HEPG**)
- Hydraulic Environmental Synthetic Esters (**HEES**)
  - Novel Secondary Esters - Estolides
- Hydraulic Environmental PAO (polyalphaolefins) and related products (**HEPR**)
- **Undefined**
  - EcoHydrocarbons (Renewable Hydrocarbons)



## *What to Look For in a Biolube*

- Sustainably Sourced
- Biodegradability
- Ecotoxicity
- Bioaccumulation
- Oxidative Stability
- Hydrolytic Stability
- Wear/Extreme Pressure Protection
- Seal/Hose/Elastomer Compatibility





## Choose The Right Product For The Application

Class	Typical Performance	Biodegradability	Seal & Hose Compatibility	Water Tolerance	Limitations	Application
Petroleum	Good	No	Good	Good	Environmental	No chance of leakage
HETG	Varies	Readily	Mixed	Medium	Water, Heat	Light Duty, Short change out, low temperature.
HEPG	Weak	Mixed	Very Poor	Miscible	Incompatible with many seal materials. Absorbs moisture. Prices vary	Fire hazard, especially designed system
HEES	Mixed	Readily	Very Poor	Very Weak	Hydrolyzes in water. Creates acids. Expensive.	If dry, high performance.
HEPR	Excellent	Some	Excellent	Excellent	Expensive	Heavy duty, chance of contamination
Estolide	Excellent	Readily	Good	Good	Oil phase water	Heavy duty, wide range

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## *There are Many Sustainable Applications In Clean Fleets*

- Engine Oils
- Hydraulic Fluids
- Gear Oils
- Drive Line Oils
- Greases
- Tractor Fluids
- Cleaners
- Absorbants



The background of the slide features a dynamic, artistic splash of golden liquid. The liquid is captured in mid-motion, with several large, flowing streams and numerous smaller droplets suspended in the air. The lighting highlights the metallic sheen and the fluid, organic shapes of the splashes, creating a sense of movement and elegance. The central text is overlaid on a solid green rectangular band that cuts across the middle of the image.

# Biobased Synthetic PCMO





## *Providing Fully Formulated PCMO R&D Assistance*

- API SN-RC certification on a 5W-20 and 5W-30 motor oil
- 5W-20 and 5W-30 grades represent 79% of all motor oil sold in the U.S.
- “SN-RC” is the highest performance standard issued by the API
- Meets the International Lubricant Specification Advisory Committee (ILSAC) GF-5 performance standard
- Available for Sampling as of 8/1/2019
- Available for sales through Amazon as of 9/1/2019.

## Enhanced Engine Cleanliness

- 150,000 mile (241,402 km) taxi cab field trial under severe stop and go conditions in Las Vegas Nevada, USA
- Engines run on Estolide-based formulations under severe stop and go conditions had far less varnish



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## *Conclusions*

- Making the determination to change to environmentally considerate lubricants one should consider many factors
- A biolube can be more expensive initially but can save money in the long term
- Biolube have been proven in the field and can perform as well as petroleum

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## *Stay Connected!*

### Linked IN

[www.linkedin.com/company/biosynthetic-technologies](http://www.linkedin.com/company/biosynthetic-technologies)

### Twitter

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# Biobased Products for Fleets

Presented by Chris V. Case



Facilities and Fleet Manager, Retired  
Consultant, United Soybean Board

# What Is the United Soybean Board?



- Established in 1991
- Funded by Soybean Farmers
- Represents over 681,000 soybean producers
- Supports development of biobased products
- Governing Board - 73 Volunteer Farmer-Leaders
- Supports Soy Marketing, Research and Commercialization



# What Are Biobased Products ?

- Products made from biological materials, including renewable agricultural, forestry, and marine materials.
- Soybeans are one source of these materials; others are corn, sugar cane, plant residues, wood, etc.



## Did You Know?

- Vegetable Oils have better lubricating qualities than petroleum oils
- Vegetable Oils have greater solvency than petroleum oils
- Vegetable Oils are more readily biodegradable than petroleum oils

# **Biobased Products made from Vegetable Oils are:**

Equal to, and in many  
applications, better performing than  
petroleum based products

# **Biobased Products made from Vegetable Oils are:**

When compared to commonly used shop products, are typically safer for employees to use than petroleum based products



# **Biobased Products made from Vegetable Oils are:**

Typically found to be more readily biodegradable and less toxic to the environment than petroleum based products

# Who Uses Them?

In use at Pictured Rocks National Lakeshore since 1998 when “Demonstrating” the use of biobased products in Maintenance and Fleet Operations began



# Bio-Diesel (B-20)

Diesel Trucks and Heavy Equipment  
Reduced Particulates and GHG emissions



Including Successful Cold Weather Testing

# Soy Hydraulic Fluid

- Dump Trucks
- Snow Plows
- Backhoe/Loaders
- Vehicle Lifts



Less “intense Clean-up in event of a spill/release



# Soy Trans-hydraulic Fluid

- Backhoe/Grader and Crawler/Dozer
- Utility Tractors



# Soy Trans-hydrostatic Fluid

## Tractor/Mowers



Protect your grounds areas in event of spills/leaks

# Soy 2-Cycle Engine Oil

- Mower/Trimmers
- Snowmobiles
- Chainsaws



# Soy 2-Cycle Engine Oil

## Patrol Boat Outboard Motors



It's like dumping motor oil directly into the Lake



# Soy Bar and Chain Oil



Chain oil goes directly from the chain into the environment!



# Soy #2 Chassis Lubricant



# Soy Parts Washing Fluid

- 300 degree flash point
- Low VOC and health hazard
- Performance equal to petroleum solvents



# Soy Penetrating Lubricant

- Penetrates threads
- High flash point
- Low evaporation
- Residual lubrication
- Water displacing



# Soy Crankcase Oil

**For more than 12 years Pictured Rocks National Lakeshore successfully demonstrated the year-round use of soy-biobased engine oil in Diesel and Gas engine vehicles**





# Soy Cleaners and Solvents

A wide variety of soy-biobased cleaning products are also available



# Biobase a “Green” Vehicle

**The NY/NJ Port Authority and Logan Airport have completely “greened” equipment by replacing all fluids and lubricants in selected equipment with biobased products including engine oil**



Logan Airport



NY/NJ Port Authority

# Soy Oil Now in Goodyear Tires



- Replaces 60% of Petroleum Oil in Tire
- Better Flexibility & Traction at Low Temperatures
- Improves Manufacturing Efficiency & Energy Use

# **Consider the Benefits of Biobased Products**

- Proven Performance
- Improved Employee Health and Safety
- Increased Environmental Stewardship

**All Reasons to Try Biobased Products  
in Your Fleet**



# **How to Find Biobased Products**

**USB Website**

**[www.soybiobased.org](http://www.soybiobased.org)**

# Thank You For Your Efforts

## How can the USB and I help?

Chris V. Case

Biobased Coach

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(906) 553-2511

# Visit [motoroil.biosynthetic.com/](https://motoroil.biosynthetic.com/) for more information and place your order!



Available in  
**5W20 or 5W30**

Use coupon code **SSCC20**  
for 20% off your 6 pack!



# Questions? Contact Us!



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