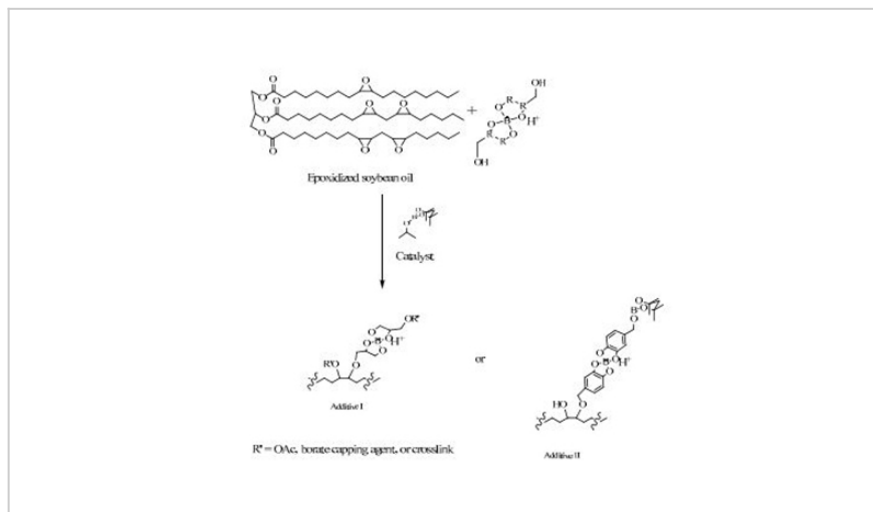


Vegetable-Oil-Based Lubricant with a Scalable Green Synthesis Method

ID# 2009-3627



PennState



Synthesis of the bio-based lubricant

Technology Summary

The disclosed invention is a bio-based anti-friction/anti-wear additive that demonstrates significant improvement in friction and “wear and tear” protection compared to commercial additives of mineral oil origin. The invention is a process that optimizes a synthetic route to convert any vegetable oil that contains some double bonds into a boron-containing molecule that demonstrates improved friction and wear properties compared to petroleum-derived additives.

Application & Market Utility

This technology’s advantages include the use of readily available raw materials, non-toxic byproducts, and the potential to deliver better properties when compared to currently available mineral oil-based technology. Lubricant additive compounds are premium-priced and highly application-specific. This technology provides a bio-based compound that can deliver better functional properties compared to existing commercial additives at a lower price using renewable resources (vegetable oil) and presents a green methodology that can be easily adopted for commercial scale-up.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- boron-containing lubricant
- petroleum substitute
- bio-based additives
- non-toxic
- green chemistry

Researchers

Brajendra K. Sharma

Senior Research Engineer

[Online Bio](#)

Sevim Z. Erhan

Center Director

[Website](#)

Glenn Heise

Senior Scientist

Originating College

College of Engineering

Office of Technology Management Contact

Ritter, Dustin

dwr18@psu.edu

814-863-7070



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.