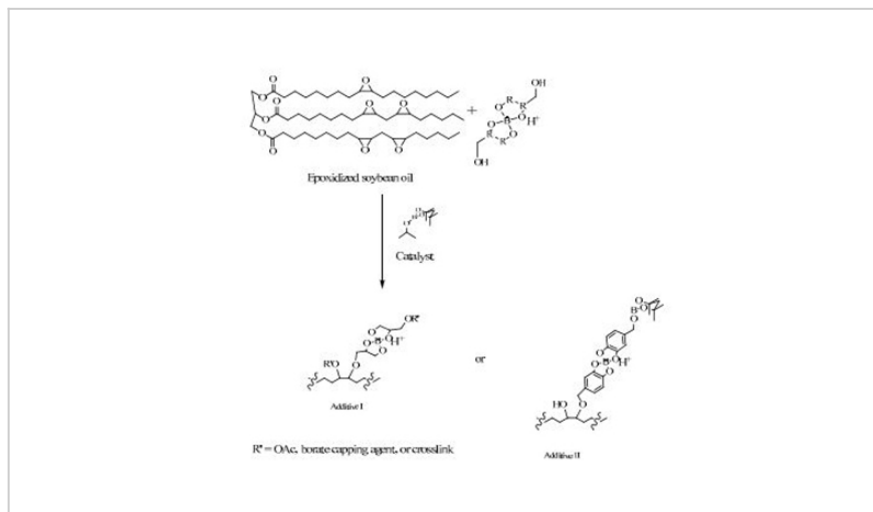


# Vegetable-Oil-Based Lubricant with a Scalable Green Synthesis Method

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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

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