



PRESS RELEASE – Army Ph IIS: VBASE Oil Company

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VBASE Oil Company Awarded \$2MM Contract To Demonstrate High Efficiency, Sustainable Gear Lubricants Based on SPE® Base Oils

VBASE® Oil Company has been awarded a \$2MM Small Business Innovation Research (SBIR) Phase II Sequential award through the U.S. Army, W51701-25-C-A184, titled “High Efficiency and Sustainable Gear Lubricants for Demand Reduction.” The program will deliver an Army-ready formulation built to exceed SAE J2360+ performance requirements, enabling measurable improvements in fuel efficiency, durability, and sustainability in military driveline systems.

The project builds on VBASE’s patented Secondary Polyol Ester™ (SPE®) base oil technology, which delivers excellent lubricity, oxidative stability, and low-temperature performance compared to conventional lubricants. These biobased, readily biodegradable base oils support enhanced fuel economy, reduced maintenance, and longer equipment life in demanding operating environments. The effort will formulate and evaluate two viscosity grades of SPE-based gear oils to demonstrate SPE performance inside finished lubricant systems that can be adopted by lubricant manufacturers and OEM partners.

Planned work includes comprehensive tribological testing, thermal and oxidative stability analysis, and evaluation of extreme-pressure additive packages, followed by field trials to quantify real-world efficiency and durability gains in Army platforms. The resulting formulation will be a fully formulated, qualification-ready gear lubricant that de-risks adoption for lubricant manufacturers and OEM partners by providing a proven design that can be branded and commercialized by industry.

“This program gives us the opportunity to prove that high efficiency and high durability can coexist in a single gear lubricant based on SPE base oils,” said Zach Hunt, Principal Investigator. “By pushing SPE-based formulations to and beyond SAE J2360+ performance specifications and validating them through advanced bench testing and field demonstrations, we expect to generate data that demonstrates meaningful fuel savings and longer component life for Army vehicles operating in the harshest conditions.”

“This is exactly the kind of opportunity that excites a formulator,” said Dr. Nathan Knotts, Innovation Scientist and Senior Formulator. “SPE base oil chemistry allows formulators to design gear lubricants that are efficient and durable while also supporting biobased and biodegradable lubricant solutions. The formulations we develop under this program will help guide future products formulated by our lubricant manufacturing partners across military, commercial, and industrial applications.”

“In simple terms, this project will deliver a better gear oil for the Army, one that can help vehicles use less fuel, run cooler, and last longer under harsh conditions. Completing the rigorous J2360+ qualification process means the final formulation becomes a ready-to-use, fully validated design that lubricant manufacturers can adopt without taking on the expense and time of multi-year testing. This is exactly what VBASE does: we enable high-performance, biobased lubricants that can have an outsized impact on the industry and the environment,” said Dr. Jeffrey DiMaio, CEO.

For the Army and the broader Department of War, high-efficiency gear lubricants informed by this work can support reductions in fuel usage, lower sustainment costs, and improved mission readiness by extending drain intervals and simplifying logistics. Beyond defense applications, gear lubricants built on SPE base oils offer the potential for fuel and energy savings across heavy equipment, transportation fleets, and industrial machinery, contributing to reliability and more sustainable operations worldwide.

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**About VBASE Oil Company**

VBASE® Oil Company produces biobased Secondary Polyol Ester® (SPE®) base oils engineered for performance in demanding applications. By collaborating with lubricant manufacturers and OEMs, VBASE SPE base oils enable lubricant solutions that boost equipment reliability, extend service intervals, and reduce total operating costs, supporting the next generation of high performance systems. VBASE base oils are sourced from renewable carbon, are readily biodegradable, and are designed to help reduce energy usage and environmental impact compared to conventional alternatives.

Keywords: high efficiency, gear oil, synthetic lubricants, environmentally acceptable lubricants, EALs, SAE J2360, contested logistics, sustainable, biobased, SPE base oil, fuel efficiency



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