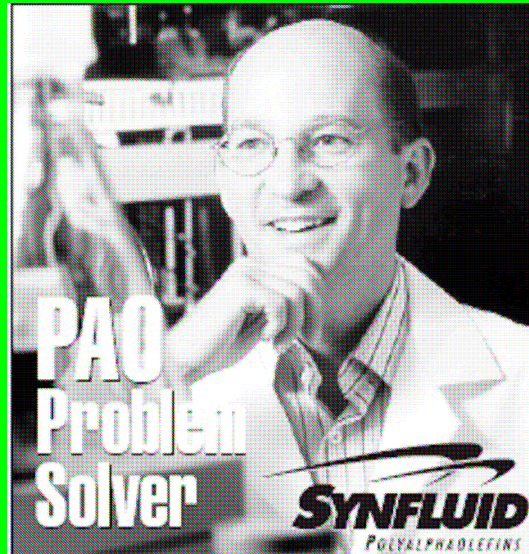


# Biobased and Renewable (Green)

- Green is Hot
- Green makes sense

Bio Technology: Bill Garmier at 330.877.9982,  
www.renewablelube.com.

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with Ken Hope, Ph.D.

## Why Bio-Based Hydraulic Fluid?

It is estimated that over 100 million gallons of fluids leak from hydraulic machinery and other lubricant equipment in North America each year! Leaking fluids from equipment used in sensitive geographical areas can have long-term negative consequences on the environment. The 2002 US Farm Bill Act mandates government agencies to purchase environmentally safe, bio-based (vegetable oil) lubricants. The challenge presented to a formulator is maintaining the performance levels while achieving biodegradability.

A solution, developed by Renewable Lubricants, Inc., (RLI) with assistance from Chevron Phillips Chemical Co. LP, is the use of Synfluid PAOs combined with bio-based oils and specially designed additives. While typical hydraulic oils are not biodegradable, this new system achieves the "ultimate" biodegradation rating (ASTM D5864 - PW1) and even *improves* several performance parameters, not

previously attainable. The table below shows a comparison of conventional hydraulic oils with the new PAO bio-based lubricant from RLI.

Property	RLI PAO/Bio-Based Hydraulic Fluid	Conventional Hydraulic Fluid
Biodegradability	Excellent	Poor
Bio-Based	Yes	No
Viscosity Index (VI)	200	95
Pour Point (°C)	-40	-18
Fire Resistance	Excellent	Fair
Oxidative Stability RBOT	250-613	250-350
Hydrolytic Stability	Good	Good
Low Temperature Fluidity	Excellent	Good

Benefits of the new system are a much higher viscosity index (VI), superior pour points and improved low temperature fluidity, all of which contribute to improved energy efficiency. Furthermore, these new formulations allow a range of ISO viscosity grades. This same technology can also be beneficial for bio-based gear lubricants, chain and cable lubricants/greases, and other applications for equipment used in sensitive environmental areas.

## Q: Who should I contact for additional information?

A: Synfluid PAOs: Lisa Fobian at 832.593.7813;  
Bio Technology: Bill Garmier at 330.877.9982,  
www.renewablelube.com.

Another quality product from



The Woodlands, Texas

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