Written by LMT Staff
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What more might good old, hardworking castor oil be able to do for you?

While synthetics and petroleum-based lubricants have traditionally provided the best performance for applications throughout industry, researchers are working on biodegradable alternatives that could soon offer end-users other viable choices.

According to one study, recently published in the journal Green Chemistry, scientists at the University of Huelva in Spain have been attempting to develop an environmentally friendly "oleogel" type of lubricating-grease based on cellulose derivatives and ricin oil from the castor plant (part of the Euphoriaceae family). Because they are produced solely from natural substances, as opposed to incorporating traditional synthetic oils or petroleum derivatives and thickeners made with metallic soaps or polyurea derivatives (a family of synthetic polymers), oleogels are 100% biodegradable.

Still working out the kinks

The authors of the study note that their new formulation has a similar level of mechanical stability to that of traditional greases and is highly temperature-resistant with relatively constant viscosity. But they admit to still having a good deal of work ahead of them in refining the new grease, particularly in perfecting its lubricating and anti-wear performance. For example, they acknowledge having observed the material being expelled in large quantities when it has been subjected to large inertial forces at high temperatures-something that could pose a significant problem for the material's use in real-world bearing applications.

Still, the environmental benefits afforded by this new castor-based oleogel could be substantial. Moreover, it seems to be easier to process and requires simpler technology to produce than that used to make conventional products.

For an abstract of the study and more information, click here.

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All-Pur

pose Bio-Based Lubricant/Penetrant

LubriMagic™ is a bio-based all-purpose lubricant and penetrant from Plews/Edelmann. The company notes that the product is made from a vegetable-based formula, is biodegradable and has four times the natural lubricity of petroleum-based products. It is suitable for a number of applications, including lubricating nuts and bolts, rollers, hinges, electric power tools, construction machinery and more. The product also serves as an effective rust inhibitor. LubriMagic is available in five sizes. The company also offers a full line of bio-based greases and oils under the LubriMatic Green ™ name.

Plews/Edelmann
Dixon, IL

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Green Up Your Pneumatic Actuators

Lehigh Fluid Power, Inc., a manufacturer of pneumatic and hydraulic actuators, announces its JHDG “Green” series of pneumatic actuators. Designed to reduce energy consumption, the Green series cylinder combines the company’s Miracalube piston-lubrication system with its Dual Max pressure control regulator and ILCN seals to reduce total cost of ownership (TCO) and increase cylinder life. According to the company, test results indicate that a typical user can reduce cylinder energy expenses an average of 21%. The Green series is available in bore sizes from 1.5” to 6” and in strokes from .5” to over 120”.

Lehigh Fluid Power, Inc.
Lambertville, NJ

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New Line of Energy-Saving Additives

Green Star Products produces a complete line of TVT Energy-Saving Fuel and Lubrication additives. It includes an additive to lubrication oil for diesel and gasoline engines; a water-soluble cutting oil for machine shops using water as a coolant and lubricant; machine cutting oil; a hydraulic fluid additive; an oil-well drilling additive, with both heavy-density and water-soluble oil; and a diesel-fuel additive that the manufacturer claims can increase combustion efficiency and reduce emissions. The company notes that its lubrication products are capable of reducing friction up to 80% while still remaining environmentally friendly.

Green Star Products
Salt Lake City, UT

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