



Bio-Based Oils

Good for Equipment and the Environment



Why use bio-oils?

- Less damage to grass and other plants
- Less dependent on fossil fuels
- Less toxic for workers and the environment

Where to buy bio-oils?

Ask your current oil distributor or equipment manufacturer.

Do they cost more?

Yes and no.

Bio-oils can cost more than petroleum-based products, but they are a small part of a maintenance budget and can save clean-up costs if spilled.

Green landscape companies are interested in less-toxic and less-polluting products to care for healthy, natural landscapes. Did you know that specially-formulated canola, soybean, sunflower, and corn oils are now used to lubricate landscape equipment? Jacobsen, John Deere, and Toro are among the companies now factory-filling new equipment with hydraulic and tractor hydraulic fluids, bar and chain oil, two-cycle engine oil, penetrating lubricants, gear oil, and grease all made from American farm crops.

From the U.S. national park system to European equipment users, these oils have performed for years as an environmentally safer option in many types of equipment. Several U.S. bio-oil companies now meet API (American Petroleum Institute) standards for equipment commonly used in the landscape and turf management industries.

Bio-based oils biodegrade better

Bio-based oils break down naturally, meeting the definition of biodegradability put forth by the Organization for Economic Cooperation and Development (OECD). According to OECD, "biodegradation is the process by which organic substances are decomposed by micro-organisms (mainly aerobic bacteria) into simpler substances such as carbon dioxide, water and ammonia." Petroleum-based and synthetic ester products do not biodegrade to the same degree or rates.

<http://stats.oecd.org/glossary/detail.asp?ID=203>

Are bio-hydraulic fluids compatible with existing equipment and will they void equipment warranties?

According to suppliers and current users of bio and petroleum hydraulic fluids, compatibility isn't an issue normally. The different oils can be mixed and seals are not damaged. There are exceptions, however, so it's important to ask someone knowledgeable about your equipment, such as the manufacturer or your oil dealer. Warranties don't usually apply to lubricant use; bio-based oils can meet manufacturers' specifications for lubricants as do petroleum oils.

Photo Credit top to bottom: Seattle Public Utilities, Oklahoma State University, Green Living Online, University of Massachusetts Amherst, University of Nebraska

Successes in the field

Bruce Hancock, Facilities Manager for Whitman Mission National Historic Site in Walla Walla, led his staff's switch to bio-oils. "We maintain our own equipment, and switched all our equipment to bio-oils a year ago. We have Class A turf, use John Deere mowers, and had no problem with switching our turf equipment."

Chris Case, Facilities Manager at Pictured Rocks National Lakeshore in Michigan, has used bio-oils for 15 years in all of his landscape equipment and is a national leader in their use. See the Pictured Rocks website for more information on his program
www.nps.gov/piro/parkmgmt/biosoy.htm

Robert Toppen, Equipment Supervisor with King County's Department of Transportation, states that "King County has purchased vegetable-based hydraulic oils for use in equipment since 2001 to comply with Federal regulations protecting sensitive waterways and groundwater. Bio-based lubricants were tested and found to perform as well or better than petroleum oils, are readily biodegradable, low in toxicity, and offer worker-safety advantages."

John Huishagen, owner of Seattle Tree Preservation, Inc., states, "We use canola-based chainsaw bar oil because it is non-toxic. We started doing this when we accidentally sprayed petroleum-based bar oil into a neighbor's fish pond while pruning trees. I figured there had to be a better way."

Amy LaBarge, Senior Forest Ecologist with Seattle Public Utilities, requires all thinning contractors to use biodegradable oils in chainsaws and log processing equipment in order to protect water quality and the environment when working in the Cedar River Municipal Watershed.

Tim Trittschuh, Mechanic at Fort Custer National Cemetery states, "All of the bio-oil products we've used have worked as well—or better—than their non-bio-based counterparts, and the equipment they are used in (or on) is performing normally. In fact, some of our 90-some pieces of equipment use more than one biobased product. Our backhoe operators have noticed that sticks used to maneuver hydraulic equipment feel tighter and smoother



Photo Credit: Sue Nicol



Photo Credit: O'Brien & Company

For more information:

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King County's "Environmentally Preferable Lubricants" website for usage, vendor information, and contract language: www.metrokc.gov/procure/green/oil.htm#veg

Robert Toppen, Equipment Supervisor with King County's Department of Transportation:
(206) 296-8159

Pictured Rocks National Lakeshore website: www.nps.gov/piro/parkmgmt/biosoy.htm

