

## PRODUCT INFORMATION

# ECOSE ENVIRONMENTAL ICON KEY

To assist in the identification of the environmental performance of an ECOSE™ product, look for these icons on the product data sheets. An ECOSE product could have a single or multiple environmental icons.



### SUSTAINABLE

Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations.

#### *Use of re-refined base oils promotes sustainability.*

With today's advanced, multi-stage re-refining technology, quality is never compromised. By using many of the same processes that raw crude goes through -- plus having the advantage of starting with much cleaner, often less contaminated product than crude -- the newest re-refineries often produce higher quality, less energy demanding base oils than what are produced by conventional raw crude refineries. Twice-refined base oils meet and often exceed industry standards and OEM requirements.

Environmental benefits and performance enhancements of sustainable base oil include:

- Conserves our natural resources and reduces our dependence on foreign oil.
- For every 250,000 gallons of twice-refined oil used, more than 1,900 metric tons of greenhouse gas emissions are avoided.
- Twice-refined base oils require up to 85% less energy to produce than oil from virgin crude.
- Higher viscosity index provides inherent protection when operating under severe environmental and operational conditions.
- A lower NOACK Volatility means lower oil consumption, maximum efficiency and overall a higher level of performance.
- A lower pour point and cold crank simulator result reduces wear at start up and puts less strain on other systems.



### RENEWABLE

Renewable lubricants are those that are generally derived from renewable vegetable, plant and animal resources. These products offer a reduced environmental impact and find use in environmentally sensitive areas (i.e. close to waterways or on water) and in applications where the lubricant is lost during use. While not harmless, they are less toxic than petroleum-based fluids and cause less damage in the event of a spill.

Environmental benefits of renewable lubricants include:

- Conserves our natural resources and reduces our dependence on foreign oil.
- Reduces the impact of accidental release or spill
- Offer excellent lubricity and anticorrosion properties
- High viscosity index and high flash point
- Reduced greenhouse gas emissions, from sourcing to manufacturing to applications
- Because they are made from natural, renewable resources, they are readily available



### NON-TOXIC

Non-toxic in acute aquatic toxicity test (LC-50) refers to the response of water-based organisms to chemicals or physical agents. Non-toxic fluids tend to have a low aquatic toxicity to fish and other aquatic species and are generally tested against Organization for Economic Cooperation and Development (OECD) Test Method 202 or 203. They are also classified as inherently biodegradable by the OECD Test Method 301B.

Environmental benefits of non-toxic lubricants include:

- Protects animal and plant life in the event of an accidental release or spill
- Especially appropriate in hydraulic systems of industrial and mobile equipment operating in environmentally sensitive areas
- Easily recycled
- Excellent thermal and oxidative stability-long service life
- Can be used in high-pressure, high-temp, vane, piston and gear-type hydraulic pumps



## BIODEGRADABLE

Biodegradable refers to the chemical degradation of a substance (lubricant) in the presence of micro-organisms/bacteria. The benchmark for qualifying a lubricant as biodegradable is if its biodegradability is more than 80 percent by the Coordinating European Council (CEC) L-33-93 test method that's run for 21 days (or) more than 60 percent that's run for 28 days by the test method outlined in the Organization for Economic Cooperation and Development (OECD) 301B/ASTM D5864.

The OECD defines are two main types of biodegradability:

- **Inherently biodegradable** – classification for a product that has a biodegradation better than 20 percent in 28 days or 12 weeks, which includes most, if not all non-additized mineral oil lubricants (up to ISO VG 320).
- **Readily biodegradable** – classification for a product that has a biodegradation of more than 60 percent within 28 days, which precludes most, if not all, mineral oils.

ECOSE lubricants designated with the  icon, achieve the "readily biodegradable" classification (to-date, we have no ECOSE products that carry .

Environmental benefits of biodegradable lubricants include:

- Negates the environmental impact of an accidental release or spill
- Safety of operators and respect for their health
- The risk of pollution is greatly reduced
- Well suited in applications where the lubricant is used on a "once through" basis and where low toxicity is required



## ENVIRONMENTALLY ACCEPTABLE LUBRICANT

US EPA defines EALs as lubricants that are biodegradable, minimally-toxic, not bioaccumulative, and produce no standing sheen

Environmental benefits of EALs include:

- Inherent biodegradability (biodegradation of more than 60 percent within 28 days)
- Low aquatic toxicity reduces impact on animal and plant life in the event of a spill
- Don't contain harmful substances that would bioaccumulate to harm aquatic life
- Environmental protection for leaky systems or systems prone to hose bursts



## NON-ZINC

Zinc-free ashless formulations do not contain heavy or near-heavy metals such as zinc, which are normally non-biodegradable. Zinc-free oils, on the other hand, are often recommended for use in place of conventional zinc-containing oils in applications where there is the possibility of soil or water contamination. Furthermore, zinc

dialkyldithiophosphate (ZDDP) should not be used in engines that employ silver bearings.

Environmental benefits of non-zinc lubricants include:

- Enhanced biodegradability
- Low aquatic toxicity reduces environmental impact in the event of a spill
- Environmental protection for leaky systems or systems prone to hose bursts



## VESSEL GENERAL PERMIT

Meets the requirements of 2013 U.S. EPA Pollutant Discharge Elimination System (NPDES) Vessel General Permit for discharges incidental to normal operations of vessels (VGP).

- Applicable to vessels longer than 79 feet (see VGP for exceptions), operating within the "waters of the United States" as defined in 40 Code of Federal Regulations (CFR) § 122.2 (extending to the outer reach of the three mile territorial sea as defined in section 502 (8) of the CWA)
- Includes all navigable waters of the Great Lakes subject to the jurisdiction of the United States
- Requires the use of Environmentally Acceptable Lubricants (EALs) in all oil-to-sea interfaces. "Environmentally Acceptable Lubricants" means lubricants that are biodegradable, non-toxic, non-bioaccumulative, and produce no standing sheen.
- Products meeting the permit's definitions of "Environmentally Acceptable Lubricants" include those labeled by the following labeling programs: Blue Angel, European Ecolabel, Nordic Swan and the Swedish Standard SS 155470. Please visit our website for a copy of the EPA Fact Sheet.



## SMALL VESSEL GENERAL PERMIT

Meets the requirements of 2014 U.S. EPA Pollutant Discharge Elimination System (NPDES) Vessel General Permit for discharges incidental to normal operations of **vessels less than 79 feet (svGP)**.

- Applicable to all non-recreational vessels less than 79 feet (see VGP for exceptions) in waters subject to the permit and applies to "waters of the United States," as defined in 40 CFR § 122.2 (extending to the reach of the 3-mile territorial seas as defined in section 502 (8) of the CWA).
- Requires the use of Environmentally Acceptable Lubricants (EALs) in all oil-to-sea interfaces. "Environmentally Acceptable Lubricants" means lubricants that are biodegradable, non-toxic, non-bioaccumulative, and produce no standing sheen.
- Products meeting the permit's definitions of "Environmentally Acceptable Lubricants" include those labeled by the following labeling programs: Blue Angel, European Ecolabel, Nordic Swan and the Swedish Standard SS 155470. Please visit our web site for a copy of the EPA Fact Sheet.