

INDUSTRIAL BIODEGRADABLE APPLICATIONS

TECHNICAL BULLETIN

BACKGROUND

As environmental regulations grow more stringent and sustainability goals take center stage, industries such as **marine, forestry, agriculture, and industrial manufacturing** are seeking solutions that align with both performance needs and environmental responsibility.

Traditional fluorescent dyes have long served as reliable tools for leak detection. However, their use in oil-based systems has highlighted the need for more environmentally compatible alternatives in applications where biodegradability is a regulatory or ethical priority. Until the introduction of ECO-GLO™, no oil-based dyes have been able to meet this challenge.

ECO-GLO™ Green is a next-generation, oil-soluble, green-fluorescent leak detection dye that is engineered to exceed the **OECD 301B standard for “readily biodegradable” materials**. This key feature allows seamless integration into oil-based systems without compromising environmental goals.

Increased awareness of climate risk and ecological degradation has also driven widespread adoption of Environmentally Acceptable Lubricants (EALs). These lubricants must demonstrate low toxicity, bioaccumulation, and high biodegradability. ECO-GLO™ was formulated with these criteria in mind, making it a valuable addition to leak detection programs that utilize EALs or aim to meet similar sustainability benchmarks. This innovation enables users in land, sea, and air applications to enhance system integrity while aligning with increasingly strict environmental expectations.

KEY ADVANTAGES

- ✓ **Readily Biodegradable** – Exceeds OECD 301B threshold (>60% in 28 days)
- ✓ **Oil-Soluble & Fully Miscible** – Designed for synthetic and petroleum-based systems
- ✓ **Strong Fluorescence** – High-visibility under UV and violet leak inspection lamps
- ✓ **Non-Particulate & Filterable** – Uniform formulation, filtered to 2 microns
- ✓ **Stable in Harsh Environments** – No phase separation or crystallization in extreme storage conditions

By leveraging these conditions, various industries can incorporate **eco-friendly leak detection** into their service, manufacturing, and testing processes. This approach supports compliance with environmental regulations while also ensuring long-term system reliability and customer satisfaction.

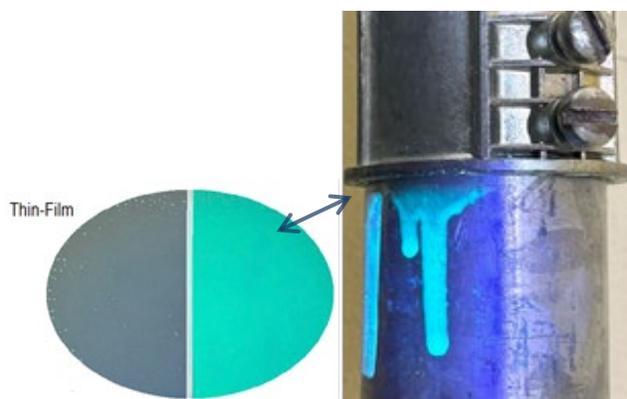
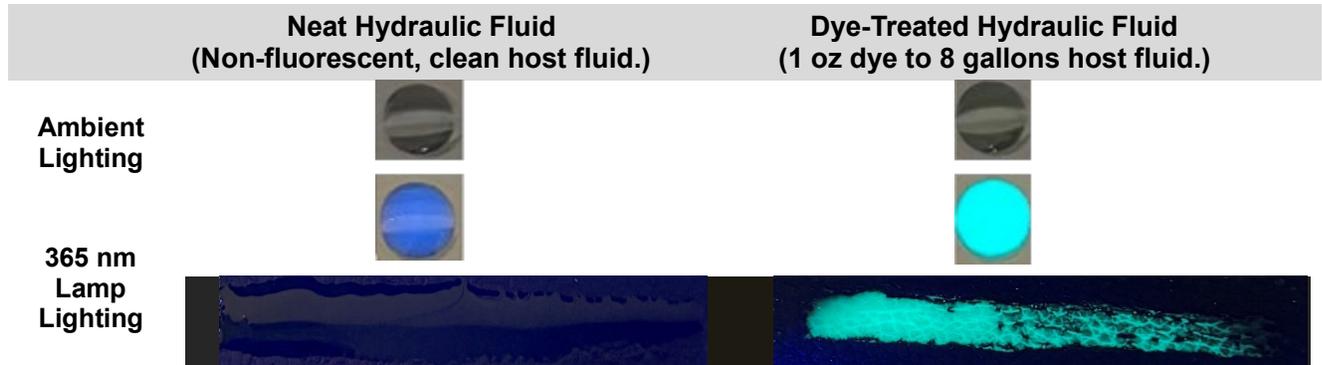
BROADER APPLICATIONS

ECO-GLO™ supports a variety of environmentally sensitive sectors, including:

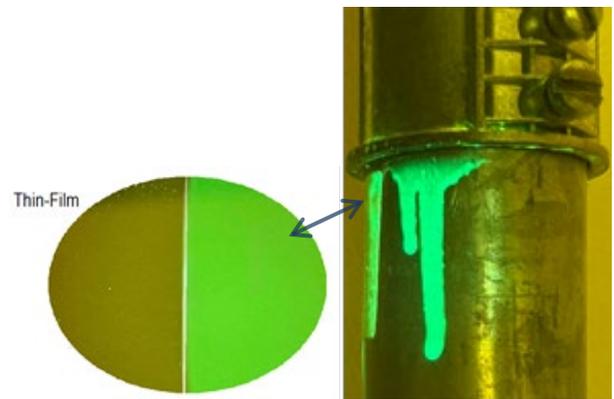
- ✓ **Marine Systems** – Hydraulic and lubrication circuits in vessels, docks, & offshore platforms
- ✓ **Agricultural Equipment** – Leak detection for tractors, sprayers, & irrigation systems
- ✓ **Forestry Machinery** – Diagnostic use in harvesters and loaders
- ✓ **Water Treatment Systems** – Detection of oil leaks in water treatment equipment
- ✓ **General Industrial Equipment** – Closed-loop systems, pumps, and compressors where environmental compliance is key.

STANDARD RECOMMENDED DILUTION RATIO

Below are images of ECO-GLO™ in action. The **recommended dose, 1 oz dye to 8 gallons host fluid**, was used to treat a readily biodegradable hydraulic fluid.



Using SPI-LTPR lamp, neat oil (left) and 1 oz to 8 gallons dye-treated oil (right).



Using amber spectacles & SPI-VL-CS lamp, neat oil (left), 1 oz to 8 gallons dye-treated oil (right).

For **Industrial OEM Applications**: ECO-GLO™ can treat up to **16 gallons of system fluid**.

- ✦ Results are based on fresh host fluid, low light conditions and using an SPI-LTPR lamp.
- ✦ Results should be verified by the user to ensure the desired performance under expected ambient lighting conditions.
- ✦ Dye amount per system should be increased if user plans on using the Spectroline® Leak Detection System as a feature for field inspections after the equipment is put into service.

SUMMARY

ECO-GLO™ Green is an innovative tool designed to be readily biodegradable and oil-soluble, specifically for eco-conscious fluorescent leak detection in petroleum and synthetic oil systems. By merging performance & environmental responsibility, it empowers industrial, marine, and agricultural users to:

- ✓ **Detect leaks with precision**
- ✓ **Align with global environmental standards**
- ✓ **Maintain fluid integrity across diverse systems**

Whether used in the field or integrated into OEM production lines, ECO-GLO™ supports a future where sustainability and system reliability go hand in hand.