

# True or false?:

## Three common sustainability myths about biodegradable lubricants



There are several myths and misconceptions when it comes to the terminology and methodologies surrounding biodegradable lubricants. Here are three of the most common.

### Myth 1

The terms 'bio-lubricant', 'biodegradable', 'bio-based' and 'green lubricants' are all interchangeable

The term 'green lubricants' should be avoided due to ambiguity. 'Bio-lubricant' and the 'bio-' prefix can be interpreted in various ways, with some considering it as readily biodegradable, while others use it to describe lubricants derived wholly or partially from renewable materials.

The CEN standards committee set out to define the key terms involved in describing a lubricant. According to EN 16807-2016<sup>1</sup> a 'bio-lubricant' meets four specific criteria:

- **A bio-based content of >25%**
- **Readily biodegradable**
- **Low ecotoxicity**
- **A standard of performance**

Meanwhile, the following definitions also apply:

- **Biodegradation:** the process of chemical break-down or transformation of a material caused by organisms or their enzymes<sup>2</sup> and it indicates how long a fully formulated lubricant will persist in the environment<sup>3</sup>
- **Bio-based:** denoting that the source of the raw materials used derive from biomass<sup>4</sup>

### Myth 2

All Ecomarks are equivalent

These standards and schemes can help customers to quickly and confidently identify products that:

- **Meet set criteria**
- **Produce a lower environmental impact**
- **Have third-party endorsements and validation**

However, since these are set out by key regulatory and approvals bodies within each respective country, they can differ between regions. For example, while standards like the EU Ecolabel and US EPA VGP<sup>5</sup> are widely implemented, others like China Environmental Labelling are country-specific.

Therefore, it is important for operators to understand these local variations in regulation, since not every environmental standard or scheme:

- **Has the same approval criteria**
- **Is recognised by their country of operations**
- **Considers the full lifecycle of the product**

### Myth 3

All biodegradable lubricants are created equal

The basestocks (esters) used to formulate biodegradable lubricants make a difference to a customer's oil drain interval (oil life)<sup>6</sup>:

- **Naturally occurring vegetable oils (Natural esters):** prone to oxidation and require frequent oil changes
- **Unsaturated synthetic esters:** known to have a lower oxidation stability than saturated esters
- **Saturated synthetic esters:** have a high oxidation resistance, in some cases, saturated esters can deliver better oxidation resistance than mineral oils

In addition, customers can benefit from enhanced equipment life and longer oil life when saturated esters are formulated to meet Bosch Rexroth RDE 90245<sup>7</sup>, and coupled with oil monitoring services customers can unlock potential reductions in carbon footprints<sup>8</sup> and improvements in operational efficiency.

Discover more at [www.shell.com/panolin](http://www.shell.com/panolin)

<sup>1</sup> EN 16807-2016 Liquid petroleum products – Bio-lubricants – Criteria and requirements of bio-lubricants and bio-based lubricants. <sup>2</sup> ASTM D6384-22, "Standard Terminology Relating to Biodegradability and Ecotoxicity of Lubricants". <sup>3</sup> EN 17181-2019 specifies a procedure for determining the degree of aerobic degradation of fully formulated lubricants. <sup>4</sup> United States Department of Agriculture. "Biopreferred Program Catalog". <sup>5</sup> US EPA – US Environmental Protection Agency, VGP - Vessel general permit. <sup>6</sup> Rivera, "Minimising stern tube failures starts with the right EAL". <sup>7</sup> In comparison to products not meeting the Bosch Rexroth RDE 90245. <sup>8</sup> Monitoring the condition of oils to address and prevent signs of contamination helps customers to extend the life of their oil and protect valuable equipment, in comparison to no such services being used. Longer oil life helps contribute to reducing resource use, which equates to reduced emissions.



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