

# LUBRITHERM® ALL-TEMP BIODEGRADABLE HYDRAULIC FLUID

## BIODEGRADATION CAPABILITIES

Lubritherm® showcases a unique capability to rapidly degrade oils and hydrocarbons while eradicating impurities. The All-Temp Hydraulic Fluid functions similarly to a synthetic enzyme catalyst, avoiding the restrictions tied to biological enzymes in terms of temperature and pH balance.

Lab and field results reveal that Lubritherm accelerates the breakdown of oils and hydrocarbons. Remarkably, it does so without being consumed or necessitating the replacement of the initial fluid, a testament supported by twelve years of fieldwork.

Having received approval from the Environment Canada Environmental Choice Program, Lubritherm Hydraulic Fluid is recognized as environmentally friendly.

### Advantages of Using Lubritherm Hydraulic Fluid:

- Streamlined transition from mineral or vegetable oils to Lubritherm Hydraulic Fluid.
- Offers a durable service life, extending up to 10 years. There's no need to replace Lubritherm under typical conditions within the recommended pressure and temperature parameters set by LubeCorp.
- Preserves fluid purity across years by eliminating external pollutants through its synthetic enzyme bioremediation process.
- Exceptional fluid purity for rigorous tasks is assured as Lubritherm is meticulously filtered down to micron size.
  - This micro-sizing employs reduction chemistry on a monomolecular structure.
  - It boasts a unique flattened matrix molecular configuration, where various chemical molecules are interlinked through covalent bonds.

### In-depth Insights:

The primary processes through which hydrocarbon biodegradation occurs are well understood. The onset of hydrocarbon decomposition by bacteria and fungi begins with substrate oxidation via oxygenases, necessitating molecular oxygen (O<sub>2</sub>) – found in dissolved air within water or solutions. Lubritherm facilitates the blending of this oxygen at a molecular scale with the substrate. This prompts the transformation of alkanes and similar components into carboxylic acids. These acids are then further broken down through the β-oxidation process, resulting in harmless carbon dioxide, water, and a minuscule portion of mostly benign protein cellular biomass.

### Footnotes:

1. Biological enzymes, acting within specific temperature and pH boundaries, function as catalysts. When initiating redox reactions, they are termed oxygenases.
2. Oxygenases are enzymes introducing oxygen from O<sub>2</sub> to a recipient molecule by facilitating oxidation.
3. β-oxidation refers to the biological mechanism wherein hydrocarbons like alkanes, oils, and fats undergo degradation, subsequently providing energy during aerobic respiration. This process entails the systematic removal of two-carbon fragments from the molecule in each cycle phase.