



# Renewable Lubricants, Inc.

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## **Bio-Aluminum™ Cutting Oil 4 cSt – 18 cSt (H1 Food Grade)**



### *"Biobased Lubricants that Perform Like Synthetics"*

Bio-Aluminum™ Cutting Oils are specially formulated, ultimately biodegradable<sup>1</sup> aluminum cutting oils that replaces light petroleum solvents. These biobased Food Grade<sup>2</sup> products provide improved drilling, tapping, and cutting of hard to work with soft aluminum and prevents the material from sticking to the tool. They can also be used on other non-ferrous metal alloys. Performance is enhanced by use of the natural fatty acid composition which provides cutting tool wetting and oiliness. The products provide low odor and are non-staining to aluminum and yellow metals. Contains no animal byproducts and are manufactured under kosher supervision.

Bio-Aluminum™ Cutting Oils are formulated without regulated volatile organic compounds (VOCs) and EPA, OSHA, and worker acceptance is high with biobased products. Components in these formulations are not regulated as volatile organic compounds (VOCs) by the California Air Resources Board (CARB), and the products are not classified as combustible under DOT regulations. Because of the high flash, the products are also safer than petroleum solvents with comparative viscosity range (more fire resistant). The advantages are many: biodegradable, renewable, low toxicity, low volatility, (Safer) helps secure the American Economy, and multi-performance.

- Meet the Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP) guidelines for ENVIRONMENTALLY ACCEPTED LUBRICANTS (EALs), and should be used where LOW TOXICITY, BIODEGRADABILITY and NON-BIOACCUMULATION properties are required.
- They exceed the acute toxicity (LC-50 / EC-50 >1000 ppm) criteria adopted by the US Fish and Wildlife Service and the US EPA.
- They are ENVIRONMENTALLY RESPONSIBLE lubricants formulated from renewable agricultural biobased resources.
- Earth's environmental future rests in the use of renewable materials.

#### **<sup>1</sup>Ultimate Biodegradation (Pw1) within 28 days in ASTM D-5864 Aerobic Aquatic Biodegradation of Lubricants**

#### **Typical Data**

		<b>4 cSt</b>	<b>18 cSt</b>
Viscosity @40°C., cSt.	ASTM D-445	3.5	18.27
Flash Point, PMCC	ASTM D-92	230°F, 110 °C	360°F, 182 °C
Pour Point	ASTM D-5985	-5°C	-5°C
Rust Prevention	ASTM D-665		
Distilled Water		Pass-Clean	Pass-Clean
Synthetic Sea Water		Pass-Clean	Pass-Clean
Copper Corrosion Strip 3hr @ 100 °C	ASTM D-130	1A	1A
Foam Sequence I, II, III (10 min)	ASTM D-1401	0 Foam	0 Foam
Four Ball Wear	ASTM D-2266	.40	.40
<b>RLI Product Item #</b>		<b>87400</b>	<b>87410</b>

***RLI can modify the above products by adjusting viscosities between 4 cSt to 50 cSt at 40°C, increasing corrosion inhibitors, and improving cold temperature performance.***

<sup>2</sup> Base oils and additives in these products are listed in 21 CFR 178.3570, Lubricants for incidental food contact (USDA H1). Full compliance with other applicable restrictions of FDA, USDA, oil spill, and oil pollution prevention statutes is recommended.

STABILIZED by Renewable Lubricants™\* is RLI's trademark on their proprietary and patented anti-oxidant, anti-wear, and cold flow technology. High Oleic Base Stock (HOBS) are agricultural vegetable oils. This Stabilized technology allows the HOBS to perform as a high performance formula in high and low temperature applications, reducing oil thickening and deposits.

Patented Product with Pending and Foreign Patents

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**Availability    F.O.B. :Hartville, Ohio, USA    1 Gallon    5 Gallon Pail    Drum    Totes    Bulk**