



Renewable Lubricants, Inc.

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Bio-Syntra™, Bio-SynXtra™, and Bio-SynXtra™ LV

(Heavy and Extra Heavy Duty Metal Working/Machining Oils)



"Biobased Lubricants that Perform Like Synthetics"

Bio-Syntra™, Bio-SynXtra™ and Bio-SynXtra™ LV machining oils are ultimately biodegradable¹, biobased metal working oils formulated from natural and synthetic esters for heavy and extra heavy duty machining operations. Their color can be classified as transparent, which permits viewing the cutting operations while in process and they are formulated to reduce smoke and mist. Performance is enhanced by use of the Stabilized HOBS's, natural fatty acid composition, which provides tool wetting and oiliness; combined with excellent extreme pressure (EP) and antiwear technology. The super high viscosity index of the Stabilized HOBS and synthetic base stocks adds additional load carrying properties and corrosion protection. They are non-staining to yellow metals and may be used for machining both ferrous and non-ferrous metal alloys. These operations include: stamping, drawing, milling, drilling, turning, grinding, honing, broaching, thread cutting, and tapping.

Bio-SynXtra™ LV is a low viscosity version of Bio-SynXtra™. Bio-Syntra™ provides less EP and is a lower cost product (match viscosities and EP performance below to equipment and application requirements). These (Biopreferred^{sm.}) products do not contain active sulfur, chlorine, zinc, phosphorus, silicon, or heavy metals, and do not produce an abrasive odor. In addition, these oils are particularly useful for machining stainless and hard steel, such as Hastalloy and tool steels.

The advantages are many: biodegradable, renewable, low toxicity, no hazardous volatile organic compounds (VOC), more fire resistant, safer, EPA and ISO 14000 compliant, reduces foreign oil, and helps secure the American Economy, OSHA and worker acceptance is high with biobased oils.

Bio-Syntra™ and Bio-SynXtra™ oils are ENVIRONMENTALLY RESPONSIBLE lubricants that are formulated from renewable agricultural plant resources. We believe Earth's environmental future rests in the use of renewable materials.

Typical Specifications

| ISO Grade | Bio-Syntra <u>32</u> | Bio-SynXtra <u>46</u> | Bio-SynXtra LV <u>22</u> |
|---|----------------------|-----------------------|--------------------------|
| Specific Gravity @60°F. | .89 | .90 | .90 |
| VISCOSITIES: @100°C., cSt. | 7.5 | 9.3 | 5.8 |
| @40°C., cSt. | 31.5 | 44.4 | 21.6 |
| Viscosity Index | 219 | 200 | 234 |
| Flash Point, COC °C | 209 | 230 | 190 |
| Pour Point, °C | -23 | -20 | -18 |
| Copper Corrosion ASTM D-130 | 1B | 1B | 1B |
| Rust Prevention ASTM D-665 | No Rust | No Rust | No Rust |
| 4-Ball EP Weld Pt. ASTM D-2783 (kg) | 500 | >800 | >800 |
| Taping (Relative Efficiency %) 4140 Steel | 99.8 | | |
| 1020 HR Steel | | 120 | 120 |
| 1018 Forming Steel | | 100 | 100 |
| 304 Stainless Steel | | 100 | 100 |

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.

¹ Ultimate Biodegradation (Pw1) within 28 days in ASTM D-5864 Aerobic Aquatic Biodegradation of Lubricants

Patented Product: US Patent 6,383,992, US Patent 6,534,454, Patent 6,624,124, US Patent 6,620,772 with additional Pending and Foreign Patents

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Availability F.O.B. :Hartville, Ohio, USA

5 Gallon Pails Drums Bulk