Bio-Fleet™ Hydraulic Fluids are the perfect choice for hydraulic equipment operating outside where higher moisture and dusty environments are more prominent. They are highly inhibited against moisture and rusting in both fresh and sea water, passed both A and B Sequences of the ASTM D-665 Turbine Oil Rust Test, and they provide excellent water separation as shown in ASTM D-1401 Demulsibility Test. Bio-Fleet™ Hydraulic Fluids are the best economical choice where these unpredictable environmental conditions exist and the equipment require more frequent oil change intervals.

Incorporating the super high viscosity index (VI) of the Stabilized® High Oleic Base Stocks (HOBS) into the formula, increases the VI past synthetic levels (Energy Conserving Formulas). In addition, this super high VI naturally improves the thermal and mechanical shear stability of the formula and provides additional fluid protection under higher loads and pressures. The HOBS’s extremely low volatility increases the flash and fire safety features in the formula. These biobased fluids are designed to provide seal conditioning for longer seal life and to reduce oil leakage from the system.

Bio-Fleet™ Hydraulic Fluids meet the Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP) guidelines for Environmentally Acceptable Lubricants (EALs), and should be used in hydraulic systems 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. Because they meet the environmental requirements they can also be used where ISO 15380 (HEES/HETG) Hydraulic Fluids are specified. Bio-Fleet™ Hydraulic Fluids are ENVIRONMENTALLY ACCEPTED LUBRICANTS (EALs) that are formulated from renewable biobased resources. We believe Earth's environmental future rests in the use of renewable materials.

Bio-Fleet™ Hydraulic Fluids are ultimately biodegradable\(^1\) vegetable based formulas that meets and exceeds Vickers M-2950-S, Vickers 1-286-5, U.S. Steel 126, and U.S. Steel 127. These patented biobased hydraulic fluids are formulated to perform in fleet, marine, and industrial hydraulic systems that require Anti-Wear (AW), anti-rust, anti-oxidation, anti-foam, and demulsibility properties. An environmentally friendly, zinc-free additive system has also been developed that meets or exceeds high pressure pump requirements. The anti-wear performance meets the requirements for Vickers 35VQ-25 and V-104C (ASTM D-2882) vane pump stand tests, and exceeds DIN 51524 Part 2 and 3 (HLP/HVLP) load stage 10 that is recommended for vane, piston and gear pumps.

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\(^1\)Ultimate/Readily Biodegradation (Pw1) within 28 days in OECD 301B/ASTM D-5864 Aerobic Aquatic Biodegradation of Lubricants

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.


\(\text{Availability F.O.B.: Hartville, Ohio, USA 1 Gallon 5 Gallon Pail Drum Totes Bulk}\)
**TYPICAL SPECIFICATIONS** | **METHOD** | **ISO 22** | **ISO 32** | **ISO 46** | **ISO 68** | **Spec. Requirements**
--- | --- | --- | --- | --- | --- | ---
Specific Gravity @ 15.6°C | ASTM D-287 | 0.88 | 0.88 | 0.88 | 0.88 | Report
Viscosity @ 40°C | ASTM D-445 | 22.3 | 30.5 | 43.1 | 62.8 | Note 1
Viscosity @ 100°C | ASTM D-445 | 5.27 | 6.7 | 8.8 | 11.9 | Note 1
Viscosity @ -25°C, Brookfield | ASTM D-2983 | 1,000 cP | 1,400 cP | 3,400 cP | 4,700 cP | Note 1
Viscosity Index | ASTM D-2270 | 182 | 186 | 190 | 189 | 90 (min)

**Pour Point** | ASTM D-97 | -38°C | -35°C | -33°C | -30°C | Note 1
**Flash Point (COC)** | ASTM D-92 | 205°C | 232°C | 240°C | 248°C | 198°C (min)
**Fire Point (COC)** | ASTM D-92 | 230°C | 255°C | 264°C | 270°C | 218°C (min)
**Foam Sequence I, II, III (10 min)** | ASTM D-892 | 0 Foam | 0 Foam | 0 Foam | 0 Foam | 0 Foam
**Rust Prevention** | ASTM D-665 | Pass | Pass | Pass | Pass | Pass | Pass
**Copper Corrosion Strip 3hr @ 100°C** | ASTM D-130 | 1A | 1A | 1A | 1A | DIN 51524 2(max)

**Dielectric Strength, KV (Avg)** | ASTM D-877 | 46 | 40 | 48 | 40 | >35

**Rotary Bomb Oxidation, (minutes)** | ASTM D-2272 | 270 | 272 | 270 | 260 | US 120 (min)
**Neutralization Number mg KOH/g** | ASTM D-974 | 0.5 | 0.5 | 0.5 | 0.5 | 1.5 (max)
**Volume Change (%)** | DIN 53538, Part 1 | 8.0 | 6.0 | 5.0 | 5.0 | 0 to 12
**Shore A Hardness Change (%)** | ASTM D-1401 | -5 | -4 | -4 | -4 | 0 to -7
**Demulsibility, ML Oil/Water/Emulsion** | ASTM D-4172 | 40/40/0 <10 minutes | 40/40/0 <10 minutes | 40/40/0 <10 minute | 40/40/0 <10 minute | 40/37/3 (max) (30 minutes)
**3-Ball Wear, 1h, 167°F, 1200 RPM, 40 kg** | DIN 51354 | 0.42 | 0.40 | 0.40 | 0.40 | USS 127 0.5 (max)
**FZG Test** | A8,390 | 11 | 11 | 11 | 11 | US.Steel 10 (min)

**Biodegradation Classification** | ASTM D-5864 | Ultimate PW1 | Ultimate PW1 | Ultimate PW1 | Ultimate PW1 | Ultimate PW1
**Environmentally Friendly** | OCED 301B | Readily | Readily | Readily | Readily | Readily
| ISO 15380 | yes | yes | yes | yes | meets/exceeds over 50%
**USDA Biobased Tested** | New Carbon | yes | yes | yes | yes | yes

**Note 1** Viscosity Sufficient for Application
**Note 2** Not Required
**RLI Product Item #** | 8081 | 8082 | 8083 | 8084

1 Gal (Part Number Suffix -3), 5 Gal Pail (Part Number Suffix -4) and 55 Gal Drum (Part Number Suffix -6), totes (Part Number Suffix -7)