



Renewable Lubricants, Inc.

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Bio-Food Grade AW Hydraulic Fluids **(ISO-32, 46, 68, 100, 150, 220, 320, 460)**



"Biobased Lubricants that Perform Like Synthetics"

Bio-Food Grade¹ AW Fluids are multi-functional biobased lubricants that contain ingredients which are "Generally Regarded as Safe" (GRAS) for food possessing equipment. These Fluids are formulated to perform in hydraulic systems and gear drives that require Anti-Wear (AW), anti-rust, anti-oxidation, anti-foam, and demulsibility properties. They are highly inhibited against moisture and rusting in both fresh and sea water and pass both A and B Sequences of the ASTM D-665 Turbine Oil Rust Test. Incorporating the super high viscosity index of the Stabilized* High Oleic Base Stocks (HOBS) into the formula, increases the viscosity index past synthetic levels (Energy Conserving Formulas). They can be used in environmentally sensitive areas such as in agriculture, marine, and food possessing plants. Contains no animal byproducts and are manufactured under kosher supervision.

Bio-Food Grade AW Fluids are designed for use in vane, piston, and gear-type pumps and have shown to have exceptional anti-wear performance in ASTM D-4172. The anti-wear performance meets and exceeds the requirements for Vickers M-2950-S (35VQ-25) and I-286-S (V-104C), Rexroth, US Steel 126, 136, and 127, and DIN 51524 Part 2. They also meet the requirements for ashless GL-1 and GL-2 gear oils in reduction units and gear sets. (*Use Viscosity Sufficient For OEM Application*)

The super high viscosity index of the HOBS naturally improves the thermal shear stability of the formula and increases load capacity. The HOBS's extremely low volatility increases the flash and fire safety features in the formula.

Applications: Hydraulic systems, gear drives, gearhead motors, drip oilers, air-oilers, air-tools, water pumps, bearings, machine oil, roller chains, cables, light circulating oil, etc., and general lubrication. These products may also be used in reduction units where original equipment manufactures (OEM) require an R&O lubricant (i.e. AFNOR NFE 48-600 HL, DIN 51524 Part 1, and Denison HF-1 fluids).

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

They are **ENVIRONMENTALLY RESPONSIBLE** lubricants formulated from renewable agricultural plant resources. Earth's environmental future rests in the use of renewable material.

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 Base oils and additives in this product are listed in 21 CFR 178.3570, Lubricants for incidental food contact (USDA H-1). Full compliance with other applicable restrictions of FDA, USDA, oil spill, and oil pollution prevention statutes is recommended.

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Availability **F.O.B. :Hartville, Ohio, USA** **5 Gallon Pails** **Drums** **Bulk**

ISO Viscosity Grades 32, 46, 68, and 220 meet and exceeds “Military Specifications DOD-L-24651 Lubricating Oils, Food Grade, and Food Processing Equipment.” This specification is approved for use by the Departments and Agencies of the U.S. Department of Defense. ISO Viscosity Grades 32, 46 and 68 meet DOD-L-24651 Type I and ISO Viscosity Grade 220 Meet DOD-L-24651 Type II for general purpose and gear oil lubricants. This specification also requires a rating of USDA H-1 for incidental food contact.

Typical Data								
ISO grade Replacement	32	46	68	100	150	220	320	460
AGMA Replacement	N/A	1	2	3	4	5	6	7
ASTM Grade	150	215	315	465	700	1000	1500	2500
API Gravity @ 60°F. (D-287)	30.2	29.8	29.3	28.4	27.5	26.4	26.1	25.7
Pounds/Gallon @ 60°F.	7.29	7.30	7.33	7.37	7.41	7.46	7.48	7.50
Specific Gravity @60°F. (D-287)	.875	.877	.88	.885	.89	.896	.898	.900
VISCOSITIES:								
@100°C., cSt. (D-445)	7.0	9.3	13.3	20.0	27.0	37.1	48.4	62.8
@40°C., cSt. (D-445)	31.9	45.0	65.4	97.9	142.0	212.5	306.8	442.5
Viscosity Index (D-2270)	189	196	210	229	228	226	221	216
Flash Point, COC, °C (D-92)	230	241	249	257	264	270	273	275
Pour Point, °C (D-97)	-24	-21	-20	-18	-14	-12	-9	-5
Copper Corrosion 3hr @ 100°C (D-130)	1A	1A	1A	1A	1A	1A	1A	1A
Acid Number (D-974)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
4-Ball Wear, mm (D-4172)	.40	.40	.40	.40	.40	.40	.40	.40
4-Ball EP Weld Point (kg)	160	160	160	160	160	160	160	160
4-Ball EP Load Wear Index	47	47	47	47	47	47	47	47
FZG Test (DIN 51354)	10	10	10	10	10	10	10	10
Demulsibility (D-2711)	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0	40/40/0
Foam Sequence I, II, III (D-892)	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam	0 Foam
Rust Prevention (D-665 A & B)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rotary Bomb Oxidation Stability (D-2272), Minutes	250	250	250	250	250	250	250	250

RLI’s Products have been tested by the USDA to meet the biobased content guidelines for Preferred Procurement by the U.S. Federal Agencies. The Biobased Content Guidelines are listed in law H.R. 2646 Section 9001