Renewable Lubricants, Inc.
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Bio-Food Grade™ Gear Oils

(ISO 32-460) NSF **H1, H2** STABILIZED™ by Renewable Lubricants

"Bio-based Lubricants that Perform Like Synthetics"

RLI's Bio-Food Grade™ Gear Oils are for gear drives and right angle gear drives commonly used in food processing equipment; essentially odorless and tasteless. These gear sets do not require Hypoid level of EP and because of this the lubricants most commonly specified by makers of these gear reducers are R&O or GL-3 type circulating oils. 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.

RLI's patented formulas have improved performance over conventional products in terms of oxidation, thermal shear, and fluid film (viscosity index). This super high viscosity index allows these products to be energy conserving in the startup mode and provide improved load protection, reducing wear during operation. They are highly inhibited against moisture and rusting in both fresh and sea water and passes both A and B Sequences of the ASTM D-665 Turbine Oil Rust Test. These products also provide double the oxidation stability over the US Steel 127 test requirement of 125 minutes and shows excellent performance in ASTM D-1401 Turbine Oil Demulsibility with a rating of 40/40/0 in ten minutes.

RLI's Bio-Food Grade™ Gear Oils have combined Stabilized technology with HOBS and food grade mild EP/anti-wear additives that exceed the load stage 10 in the FZG (DIN51354) requirements for both turbine oils and reduction gears. The results are patented Food Grade[1] products which have long life and heat stability. Additionally, they offer the protection advantages of the mild EP and antiwear of an API "GL-3" type gear lube. Bio-Food Grade™ Gear Oils are ENVIRONMENTALLY RESPONSIBLE biodegradable lubricants that are formulated from renewable agricultural plant resources. We believe Earth's environmental future rests in the use of renewable material.

Features

(1) API Service Classifications for ashless GL-1, GL-2, GL-3
(2) Super high viscosity index and low pour point for wide temperature usage
(3) Energy Conserving Formulas (Because of the super high viscosity index (VI) of the Stabilized HOBS these products are lighter therefore more energy efficient at room temperatures up to 40°C but provide a more protective heavier viscosity than mineral based formulas at operating temperatures of 60°C and above)
(4) Fortified with food grade additives to resist wear, oxidation, rust and foam
(5) More fire resistant and improved heat dissipation
(6) ISO14000 compliant

STABILIZED by Renewable Lubricants* is RLI's trademark on their proprietary and patented 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] This product is acceptable as a lubricant with incidental food contact (H1) for use in and around food processing areas. Such compounds may be used on food processing equipment as a protective anti-rust film, as a release agent on gaskets or seals of tank closures, and as a lubricant for machine parts and equipment in locations in which there is a potential exposure of the lubricated part to food.

Patented Product with Pending and Foreign Patents

* Trademark of Renewable Lubricants, Inc.

Availability F.O.B. :Bolton, ON, Canada 5 Gallon Pails Drums Bulk

NSF REGISTRATION #		ISO 46 140440 H1, H2			ISO 150 140441 H1, H2	ISO 220 140442 H1, H2	ISO 320 140443 H1, H2	

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^{O}F. (D-287)	29.3	28.6	28.0	27.3	26.8	26.4	26.1	25.7
Pounds/Gallon @ 60^{O}F.	7.33	7.36	7.39	7.42	7.45	7.46	7.48	7.50
Specific Gravity @60^{O}F. (D-287)	.880	.884	.887	.891	.894	.896	.898	.900
VISCOSITIES:								
@100^{O}C., cSt. (D-445)	7.0	9.3	13.3	20.0	27.0	37.1	48.4	62.8
@40^{O}C., cSt. (D-445)	31.6	45.0	65.4	97.9	142.0	212.5	306.8	442.5
Viscosity Index (D-2270)	193	196	210	229	228	226	221	216
Flash Point, COC, ^{O}C (D-92)	230	241	249	257	264	270	273	275
Pour Point, ^{O}C (D-97)	-25	-21	-19	-16	-14	-12	-9	-5
Copper Corrosion 3hr @ 100^{O}C (D-130)	1B	1B	1B	1B	1B	1B	1B	1B
Acid Number (D-974)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
4-Ball Wear (D-4172)	.35	.35	.35	.35	.35	.35	.35	.35
4-Ball EP Weld Point (kg)	200	200	200	200	200	200	200	200
4-Ball EP Load Wear Index	47	47	47	47	47	47	47	47
FZG Test (DIN 51354)	11	11	11	11	11	11	11	11
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
Timken Load, OK Load (lbs) (D-2782)	35	35	35	35	35	35	35	35
Rotary Bomb Oxidation Stability (D-2272), Minutes	250	250	250	250	250	250	250	250

RLI's Products have been analyzed by the USDA to meet the bio-based content guidelines for BioPreferred Procurement by the U.S. Federal Agencies. The Bio-based Content Guidelines are listed in law H.R. 2646 Section 9001