Renewable Lubricants, Inc.

476 Griggy Rd., P.O. Box 474
Hartville, Ohio 44632-0474
330.877.9982 Fax 330.877.2266
Web: www.renewablelube.com

Bio-SynXtra™ EP Gear Oils

STABILIZED™ by Renewable Lubricants

"Biobased Lubricants that Perform Like Synthetics"

Bio-SynXtra™ EP Gear Oils are ultimate biodegradable[1] gear oils that provide enhanced oxidation and thermal stability for extended service life in gear and bearing applications. They are designed to meet and exceed the U.S. Steel 224, AGMA 9005-E02, DIN 51517 Part 3, David Brown DB S1.53.101, ISO 12925-1 CKD, and Cincinnati Machine performance requirements. They are recommended for lubricating spur, helical, bevel, and worm gear configurations which are subject to heavy loading or shock loading in heavy-duty applications. These patented formulas have combined energy conserving Stabilized HOBS technology with bio-synthetic base stocks and exceptional EP/antiwear technology. The result is a super high VI product which has the long-life heat stability and additionally offers the protection advantages of increased gear life through extremely high film strength during operating temperatures. They provide rapid demulsification allowing the end user to drain water from the system quickly to prevent corrosion, protect components, and extend oil life.

Typical Specifications

Industrial Grade		**Light**	**Medium-Light**	**Medium**	**Heavy Medium**	**Heavy**	**Extra-Heavy**		
ISO Grade	**46**	**68**	**100**	**150**	**220**	**320**	**460**	**680**	**1000**
AGMA Grade	**E.P. 1**	**E.P. 2**	**E.P. 3**	**E.P. 4**	**E.P. 5**	**E.P. 6**	**E.P. 7**	**E.P. 8**	**E.P. 8A**
VISCOSITIES:									
@100^{O}C., cSt. (ASTM D-445)	8.7	12.2	16.6	22.7	30.9	44	58	77	99
@40^{O}C., cSt. (ASTM D-445)	42.7	64.2	93.5	139	203	306	426	638	925
Viscosity Index (ASTM D-2270)	188	191	193	193	196	202	207	203	201
Flash Point, COC, ^{O}C (ASTM D-92)	245	251	256	262	264	272	280	290	290
Pour Point, ^{O}C (ASTM D-97)	-45	-42	-40	-39	-38	-35	-32	-30	-27
Copper Corrosion (ASTM D-130)	1A	1A	1A	1A	1A	1A	1A	1A	1A
4-Ball Wear mm (ASTM D-4172, USS S-205)	.33	.30	.30	.30	.30	.30	.30	.30	.30
4-Ball EP Weld Point kg (ASTM D-2783)	250	315	315	400	400	400	400	400	400
4-Ball EP Load Wear Index	47	51	51	57	57	57	57	57	57
FZG Test A/8.3/90 (ASTM D5182, ISO 14635-1)	>12	>12	>12	>12	>12	>12	>12	>12	>12
FZG Test A/16.6/90 (DIN 51354 modified)	>12	>12	>12	>12	>12	>12	>12	>12	>12
FE-8 Bearing Test (DIN 51819-3)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Demulsibility (ASTM D-2711 & D-1401)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Sequence I, II, III (ASTM D-892)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rust Prevention (ASTM D-665 A&B)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Timken Load (ASTM D-2782)	70	70	70	70	70	70	70	70	70
Renewable Content %	58.4%	60.2%	58.2%	59.8%	61.4%	64%	66.5%	66.9%	65%
RLI Product Item #	**82400**	**82410**	**82420**	**82430**	**82440**	**82450**	**82460**	**82470**	**82480**

Features

(1) Energy Conserving Formulas - Because of the super high viscosity index (VI) of the *Stabilized HOBS, these products provide a lighter viscosity (more energy efficient) in the lower start-up temperatures up to 40-45^{O}C and an improved protective viscosity over mineral based formulas in the higher operating temperatures
(2) Super high viscosity index provides wider temperature performance
(3) Fortified with improved additive technology to resist wear, oxidation, rust, foam, and water
(4) Improve bearing and gear protection **with high levels of resistance to scuffing and micropitting**
(5) More fire resistant, improved heat dissipation and seal protection

Bio-SynXtra™ E.P. Gear Oils meet the Environmental Protection Agency (EPA) 2013 Vessel General Permit (VGP) guidelines for Environmentally Acceptable 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. Bio-SynXtra™ E.P. Gear 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 material.

[1] Based on previous ASTM D-5864 studies and ASTM D-7373 Calculations, Bio-SynXtra™ E.P. Gear Oils are Ultimate/Readily Biodegradable >60% within 28 days in 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. Patented Product: US Patent 6,383,992, US Patent 6,534,454 with additional Pending and Foreign Patents

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