



Renewable Lubricants, Inc.

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Bio-SynXtra™ Super FG Compressor Fluids



(Food Grade H1) ISO-15, 22, 32, 46, 68, 100, 150, 220

"Biobased Lubricants that Perform Like Synthetics"

Bio-SynXtra™ Super FG Compressor Fluids are Ultimate Biodegradable², bio-synthetic compressor lubricants that contain ingredients, which are “Generally Regarded as Safe” (GRAS) for food possessing equipment. These multi-application Food Grade¹ lubricants are formulated with biobased synthetic esters to improve oxidation stability, lubricity, and anti-wear (AW) performance for longer service life in many different types of industrial equipment. They provide excellent anti-corrosion, anti-foam, and demulsibility properties. They are highly inhibited against moisture and pass both A and B Sequences of the ASTM D-665 Turbine Oil Rust Test. Their multipurpose performance helps in reducing inventory and lowering cost.

Compressors and Vacuum Pumps: Bio-SynXtra™ Super FG Compressor Fluids provide superior lubricating qualities for most compressors, especially portable and stationary rotary compressors (screw and sliding vane) as well as in single-stage, two-stage, and multistage reciprocating compressors (water-cooled and air-cooled), centrifugal compressors, and vacuum pumps. While specific manufacturer recommendations vary, the ISO 32, 46 and 68 grades are most commonly used for rotary compressors, while higher viscosity grades are preferred for reciprocating units (meets and exceeds DIN 51506 VDL requirements).

Refrigeration: Bio-SynXtra™ Super FG Compressor Fluids are fully compatible in carbon dioxide (CO₂) systems as well as systems containing HFCs (hydrofluorocarbons). They are designed specifically for use in refrigeration system with HFC R-134a and new R-1234yf refrigerants, and in other HFCs including R-23, R-507, R-404A, R-407C, R-410A, R-600a, R-290, etc. They are recommended for use in heat pumps and as CO₂ process gas lubricants. ISO grade 68 is consistent with the recommendation of refrigeration equipment manufactures. (*Use a Viscosity Sufficient for OEM Application*)

Hydraulic & Gear: Bio-SynXtra™ Super FG Compressor Fluids have a zinc-free additive system that meets Food Grade H1 and AW hydraulic requirements. They have shown exceptional anti-wear performance in ASTM D-4172 Four Ball Wear Test and they are recommended for use in vane, piston, and gear-type hydraulic pumps. The anti-wear performance meets and exceeds the requirements for Denison HF-O, Vickers M-2950-S (35VQ-25) and I-286-S (V-104C), Rexroth, US Steel 126, 136, and 127, DIN 51524 Part 2 and 3, and because they are zinc-free, they can be used in reduction units where original equipment manufacturers (OEM) require an R&O lubricant (i.e. AFNOR NFE 48-600 HL, DIN 51524 Part 1, and Denison HF-1 fluids). They also meet the requirements for ashless GL-1, GL-2, GL-3, DIN 51517 Part 3, and AGMA Non-EP gear oils for bearings, reduction units, and gear sets. (*Use a Viscosity Sufficient for OEM Application*).

Multi-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.

Elastomer Compatibility: Bio-SynXtra™ Super FG Compressor Fluids are **recommended** for use with fluorocarbon (Viton), fluorosilicone, polysulfide, Teflon, Hydrogenated NBR (HNBR), and high nitrile Buna-N (>30%) elastomers. Bio-SynXtra™ FG Compressor Fluids are **not recommended** for use where neoprene, polyacrylate, polyethylene, natural rubber, styrene-butadiene rubber (SBR, Buna S) or low Buna-N seals are used.

¹Base oils and additives in this product are listed in 21 CFR 178.3570, Lubricants for incidental food contact (USDA H1). Full compliance with other applicable restrictions of FDA, USDA, oil spill, and oil pollution prevention statutes is recommended.

Bio-SynXtra™ Super FG Compressor 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™ Super FG Compressor Oils are **ENVIRONMENTALLY RESPONSIBLE** products that are formulated from renewable agricultural resources. We believe Earth's environmental future rests in the use of renewable materials.

²Ultimate Biodegradation (Pw1) within 28 days in ASTM D-5864 Aerobic Aquatic Biodegradation of Lubricant

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.

Maximum oil change intervals can be obtained through proper maintenance and RLI’s oil analysis program. Under good operating conditions and oil analysis program, ISO Grades 32, 46, and 68 could extend service life up to 12,000 hours in rotary screw compressors.

Benefits:

| | |
|---|----------------------------------|
| ➤ Reduced danger of fire and explosions | ➤ Lower maintenance costs |
| ➤ Outstanding oxidation and thermal stability | ➤ Extended service life |
| ➤ Exceptionally low pour point | ➤ Low varnish forming tendencies |
| ➤ Excellent rust protection | ➤ High viscosity index |
| ➤ Excellent demulsibility | ➤ Low toxicity |
| ➤ Excellent antiwear properties | ➤ Ultimate Biodegradable |

| Typical Data | | | | | | | | |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ISO Grade | 15 | 22 | 32 | 46 | 68 | 100 | 150 | 220 |
| VISCOSITIES: | | | | | | | | |
| @100°C., cSt. (D-445) | 3.8 | 4.6 | 5.8 | 7.6 | 10 | 13.9 | 17.8 | 24 |
| @40°C., cSt. (D-445) | 15.9 | 21.1 | 29.9 | 43.9 | 64 | 99 | 137 | 205 |
| Viscosity Index (D-2270) | 134 | 138 | 140 | 141 | 141 | 142 | 144 | 145 |
| Flash Point, COC, °C (D-92) | 234 | 250 | 259 | 264 | 265 | 268 | 270 | 270 |
| Pour Point, °C (D-97) | -60 | -57 | -55 | -54 | -51 | -49 | -46 | -43 |
| Copper Corrosion 3hr @ 100°C (D-130) | 1A | 1A | 1A | 1A | 1A | 1A | 1A | 1A |
| Acid Number (D-974) | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 4-Ball Wear, mm (D-4172) | .35 | .34 | .34 | .33 | .32 | .33 | .33 | .33 |
| 4-Ball EP Weld Point (kg) | 160 | 160 | 200 | 200 | 200 | 200 | 200 | 200 |
| 4-Ball EP Load Wear Index | 47 | 47 | 47 | 50 | 50 | 50 | 50 | 50 |
| FZG Test A/8,3/90 (DIN 51354 Part 2) | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 |
| TOST (ASTM-943 Hrs. 2.0 NNA) | 12,000+ | 12,000+ | 12,000+ | 12,000+ | 12,000+ | 12,000+ | 12,000+ | 12,000+ |
| Dielectric Strength, kV (D-877) | >40 | >40 | >40 | >40 | >40 | >40 | >40 | >40 |
| RLI Product Item # | 87710 | 87720 | 87730 | 87740 | 87750 | 87760 | 87770 | 87780 |

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