

Bio-E.P.™ Gear Oils

(ISO 46, 68, 100, 150, 220, 320, 460)

Bio-E.P.™ Gear Oils are high-performance, biosynthetic-blend gear lubricants recommended for spur, helical, bevel, and worm gears under severe or shock loading. Designed to exceed the requirements of U.S. Steel 224, AGMA 9005-E02, DIN 51517 Part 3, ISO 12925-1 CKD, David Brown S1.53.101, and Cincinnati Machine, these patented readily biodegradable lubricants combine natural esters with synthetic base oils and advanced EP/anti-wear additive technology. They deliver exceptional film strength, wear resistance, thermal stability, and water separation to extend gear life and oil longevity.

Benefits

- Readily biodegradable, non-toxic, and not bioaccumulative
- Super high viscosity index for wide temperature performance
- Enhanced anti-scuffing and micropitting protection for gears and bearings
- High flash/fire points and fire resistance improve safety
- Excellent demulsibility and corrosion protection in high-moisture environments
- Yellow Metal Friendly
- Resists wear, rust, oxidation, and foaming
- Stabilized™ HOBS reduces oil thickening and varnish in high and low temperatures
- Meets EPA VGP 2013 for Environmentally Acceptable Lubricants (EALs)
- LC-50/EC-50 >1000 ppm (EPA/USFWS acute toxicity thresholds)
- USDA Biobased formulation from renewable agricultural resources

Application / New Filling

- Recommended for industrial gear systems, including spur, helical, bevel, and worm gears
- Suitable for applications involving high loads, high temperatures, or water contamination risks
- Match ISO viscosity grade to OEM requirements for proper gear protection
- For conversion from petroleum oils, contact Renewable Lubricants for guidance on procedures

Specifications and Approvals

- Meets/exceeds:
 - U.S. Steel 224
 - AGMA 9005-E02
 - DIN 51517 Part 3
 - ISO 12925-1 CKD
 - David Brown S1.53.101
 - Cincinnati Machine
 - EPA VGP 2013 Compliant (Environmentally Acceptable Lubricant)
 - OECD 301 Readily Biodegradable
 - ASTM D 5864 Ultimately Biodegradable
 - LC-50 / EC-50 >1000 ppm – Meets EPA/USFWS Toxicity Standards

Typical Specifications

	Extra Light	Light	Medium- Light	Medium	Heavy Medium	Heavy	Extra- Heavy
Industrial Grade Replacement	46	68	100	150	220	320	460
ISO grade Replacement	E.P. 1	E.P. 2	E.P. 3	E.P. 4	E.P. 5	E.P. 6	E.P. 7
AGMA Replacement							
VISCOSITIES:							
@100°C., cSt. (D-445)	8.9	12.3	16.1	22.2	29.3	40.3	53
@40°C., cSt. (D-445)	43.1	63.9	88.2	132	186	274.1	384
Viscosity Index (D-2270)	193	194	196	197	199	202	205
Flash Point, COC, °C (D-92)	251	256	259	262	264	263	263
Pour Point, °C (D-97)	-38	-35	-34	-34	-32	-27	-22
Copper Corrosion 3hr @ 100°C (D-130)	1A	1A	1A	1A	1A	1A	1A
4-Ball Wear (US Steel S-205)	.30	.30	.30	.30	.30	.30	.30
4-Ball EP Weld Point (kg)	250	315	315	350	400	400	400
4-Ball EP Load Wear Index	47	51	51	55	57	57	57
FZG Test A/8.3/90 (ASTM D5182, ISO 14635-1)	>12	>12	>12	>12	>12	>12	>12
FZG Test A/16.6/90 (DIN 51354 modified)	>12	>12	>12	>12	>12	>12	>12
Demulsibility (D-1401)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Foam Sequence I, II, III (D-892)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Rust Prevention (D-665 A&B)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Timken Load, OK Load (lbs) (D-2782)	60	70	70	70	70	70	70
RLI Product Item #	82200	82210	82220	82230	82240	82250	82260

