PETRO-CANADA LUBRICANTS

AN HF SINCLAIR BRAND

TECH DATA

ENDURATEX™ EP & ENDURATEX XL

PREMIUM HEAVY DUTY INDUSTRIAL GEAR LUBRICANTS

INTRODUCTION

Petro-Canada Lubricants ENDURATEX EP and XL gear oils are premium performance, extreme pressure lubricants designed for enclosed industrial gears and bearings operating under severe load conditions and in extreme temperatures. ENDURATEX EP and XL gear oils are formulated with ultra-pure, high quality base oils and specially selected ashless additive technologies to deliver sustained longlife, anti-wear and extreme pressure protection. Their excellent micropitting resistance, bearing wear protection and load carrying capacity exceeds major OEM and industry requirements for EP performance.

FEATURES AND BENEFITS

Exceptional long life

- Reduces operating and maintenance costs
- Helps extend time between oil changes
- Withstands high operating temperatures for longer periods
- Reduces build-up of harmful sludge and varnish deposits for reduced wear and longer oil life

Excellent film strength and extreme pressure properties

- Extends gear and bearing life
- Reduces likelihood of seizure, scuffing or spalling of gear teeth and bearings under high load conditions and provides resistance against micropitting fatigue

Protects against rust and corrosion

- Prevents iron parts from rusting
- Protects copper-containing bearings, bushings and other components from corrosive attack
- Extends equipment life

Water separability

- Prevents emulsion formation
- Allows water to be drained off before oil is re-circulated
- Eliminates corrosive damage to metal parts when water present

Low foaming tendency

- Ensures a continuous lubricant film present at all times
- Prevents overflow from gear-boxes and oil reservoirs
- Reduces the possibility of cavitation damage to oil circulating pumps where installed

APPLICATIONS

ENDURATEX EP and XL gear oils are versatile, premium lubricants recommended for use in all types of enclosed industrial gear drives where an extreme pressure gear oil is specified, especially where micropitting protection is required.

ENDURATEX EP and XL gear oils offer excellent gear and bearing protection and long service life in a wide range of gear designs. These include: Spur, Internal, Planetary, Rack & Pinion, Bevel, Spiral-Bevel, Helical and Herringbone.

ENDURATEX EP gear oils are recommended for lubricating all types of heavy or shock-loaded bearings.

ENDURATEX XL multigrade gear oils provide excellent shear stability and are designed with the additional advantage of eliminating the need for seasonal change outs. ENDURATEX XL is available in 68/150 and 68/220 grades. ENDURATEX XL 68/150 delivers excellent low temperature properties versus leading all season competitive products for easier cold start-ups and better equipment protection. ENDURATEX XL 68/220 supports both winter requirements (68 grade) and summer requirements (220 grade). ENDURATEX XL 68/220 is specifically recommended for gearboxes exposed to temperature extremes. It has sufficient low temperature fluidity to perform well in exposed locations offering extended drain intervals and minimized downtime.

ENDURATEX EP and XL gear oils meet and exceed the following OEM and industry standards:

- Flender AS 7300 specification for EP performance
- David Brown S1.53.101 E
- DIN 51517-3
- ISO 12925-1 CKC, CKD*
- AGMA 9005-F16
- GB9503-2011 CKC
- AIST 224 (formerly USS 224)*
- JIS K 2219:2006 (class II)*
- SK025318-0004*
- Fives Cincinnati P-specifications: P-77 (EP 150), P-74 (EP 220), P-59 (EP 320) and P-35 (EP 460)
- Primetals Morgoil® Lubricant Spec. New Oil (Rev. 1.1)**

* Excluding ENDURATEX EP 680
** Excluding ENDURATEX XL multigrade gear oils

Enclosed Gear Lubrication

With enclosed gear drives, best results are obtained by maintaining the correct oil level, i.e. the lowest teeth should be half submerged when at rest.

The American Gear Manufacturers Association (AGMA) has published several gear lubricant standards for industrial machinery. ENDURATEX EP gear oils are recommended for use where the AGMA specifies the following **Antiscuff type oils:**

Former AGMA Numbers	Viscosity Range cSt @ 40°C / 104°F	ENDURATEX EP
2	61 - 75	68
3	90 - 110	100
4	135 - 165	150
5	198 - 242	220
6	288 - 352	320
7	414 - 506	460
8	612 - 748	680

For applications where no specific AGMA recommendation exists, the appropriate ENDURATEX EP viscosity grade can be determined from the following table:

Spur, Bevel & Helical Gear Lubrication

Type of Unit / Size	ENDURATEX EP	
	-10°C to 15°C 14°F to 62°F	10°C to 50°C 50°F to 122°F
Single / Double Reduction Units Parallel Shaft Separation:		
- Up to 20 cm (8”)	68	100
- 20 to 50 cm (8” - 20”)	100	150
- Over 50 cm (20”)	150	220
Triple Reduction Units Shaft Separation:		
- Over 50 cm (20”)	220	320
Planetary Gears Outside Housing Diameter:		
- Up to 40 cm (16”)	68	150
- Over 40 cm (16”)	150	220
Bevel, Spiral Bevel Cone Distance:		
- Up to 30 cm (12”)	68	150
- Over 30 cm (12”)	150	220
- High Speed, Above 3600 RPM	68	68
Gear Motors		
- All Sizes	68	150

Where all-season protection is required for wide temperature ranges, ENDURATEX XL multigrade gear oils are recommended.

Temperature ranges noted are for normal gearbox operating temperatures and do not represent the operating limits of the product.

For gearboxes operating outside the listed temperature ranges, please contact a Petro-Canada Lubricants Technical Service Advisor for an appropriate recommendation.

TYPICAL PERFORMANCE DATA

Property	Test Method	ENDURATEX EP							ENDURATEX XL	
		68	100	150	220	320	460	680	68/150	68/220
Former AGMA number		2	3	4	5	6	7	8	3	4
Density, kg/L at 15°C	D4052	0.863	0.870	0.877	0.881	0.885	0.892	0.904	0.872	0.879
Colour	D1500	<5.0	<5.0	<5.0	<5.0	<6.0	<6.0	>8.0	<1.0	<1.0
Viscosity, cSt at 40°C Viscosity, cSt at 100°C	D445	68 9.2	100 12.0	150 15.3	220 19.4	321 24.9	473 31.3	696 37.8	104 14.0	150 19.9
Viscosity Index	D2270	119	110	103	102	99	96	87	136	153
Flash Point, COC, °C / °F	D92	232 / 450	238 / 460	266 / 511	252 / 486	254 / 489	270 / 518	258 / 496	218 / 424	226 / 439
Pour Point, °C / °F	D5950	-45 / -49	-39 / -38	-33 / -27	-33 / -27	-21 / -6	-15 / 5	-12 / 10	-39 / -38	-39 / -38
Brookfield Viscosity Temperature at 150,000 cP, °C / °F	D2983	-39 / -38	-32 / -26	-27 / -17	-24 / -11	-16 / 3	-13 / 9	-4 / 25	-33 / -27	-33 / -27
Demulsibility Total Free Water (mL) Emulsion (mL)	D2711	87.7 0.3	86.9 0.4	86.4 0.5	84.6 0.9	83.8 0.8	83.0 0.9	80.3 0.7	86.9 0.2	85.5 0.4
Foam Sequence I, II, III, Tendency/Stability, mL	D892	0/0 30/0 0/0	0/0 30/0 0/0	0/0 10/0 0/0	0/0 20/0 0/0	0/0 10/0 0/0	0/0 10/0 0/0	0/0 30/0 0/0	0/0 10/0 0/0	10/0 10/0 0/0
Copper Corrosion 3h, 100°C / 212°F	D130	1a	1a	1a	1a	1a	1a	1a	1a	1a
Rust, Procedure A and B, 24 h	D665	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Timken EP Load, Pass, kg / lb	D2782	32 / 70	32 / 70	32 / 70	32 / 70	32 / 70	32 / 70	30 / 65	32 / 70	32 / 70
Four Ball Weld Load, kg	D2783	250	250	250	250	250	250	250	250	250
Four Ball Wear 20 kg / 44 lb, 54°C / 129°F, 1800rpm, 1 h	D4172	0.31	0.35	0.25	0.28	0.32	0.29	0.22	0.26	0.31
Four Ball Load Wear Index	D2783	60.4	64.9	53.0	54.8	57.2	63.5	49.8	51.6	69.5
FZG Scuffing, Failure Load Stage, A/8.3/90	DIN ISO 14635-1	>12	>12	>12	>12	>12	>12	>12	>12	>12
FZG Micropitting, Failure Load Stage, 90°C	FVA 54/7	≥10	≥10	≥10	≥10	≥10	≥10	≥10	≥10	≥10
FZG Micropitting GFT-Class, 90°C	FVA 54/7	High	High	High	High	High	High	High	High	High
FE8 Roller Bearing Test, D-7,5/80-80, Roller Wear, mg	DIN 51819-3	2	2	2	2	2	2	2	2	2

The values quoted above are typical of normal production. They do not constitute a specification.

Learn more about us: **petrocanadalubricants.com**
Contact us: **lubecsr@hfsinclair.com**

Committed to the disciplined operation of our business.

CERTIFIED
ISO 9001: 2015
ISO 14001: 2015
IATF 16949: 2016

Petro-Canada Lubricants Inc.
2310 Lakeshore Road W. Mississauga, Ontario, Canada L5J 1K2
petrocanadalubricants.com

Trademarks are owned or used under license.
IM-7810E (2024.09)