



Syncon® EP Plus Gear Oil

Phillips 66® Syncon EP Plus Gear Oil is a premium quality, synthetic, extreme-pressure industrial gear lubricant developed for the lubrication of enclosed gear drives and heavily loaded plain or rolling-element bearings operating at extreme temperatures or in severe service. It is suitable for use over a wider temperature range than conventional mineral oil-based gear oils. It meets the performance requirements of major gear drive manufacturers.

Syncon EP Plus Gear Oil is formulated with synthetic polyalphaolefin (PAO) base oils, a viscosity modifier, and a non-chlorinated extreme-pressure additive package. It has outstanding oxidation resistance and thermal stability at high temperatures to help minimize deposit formation and provide long service life. It has high load-carrying capacity for protection against scuffing and wear, protects against rust and corrosion, and is resistant to excessive foaming that can interfere with proper lubrication. It has a high viscosity index and low pour point for use in equipment operating at extreme temperatures or over a very wide temperature range.

Applications

- Heavily loaded enclosed gear drives, such as those found in mine hoists and mining machinery
- Enclosed industrial gear drives operating at very low or very high temperatures, or operating continuously at higher than normal operating temperatures
- Heavily loaded plain and rolling-element bearings operating at extreme temperatures
- Applications where the equipment manufacturer recommends a high VI, synthetic, extreme-pressure gear oil

Syncon EP Plus Gear Oil meets the requirements of the following industry and OEM specifications:

- ANSI/AGMA Standard 9005-F16, Anti-Scuff Lubricants (AS)
- DIN 51517 Part 3, Lubricating Oils, Type CLP HC
- German Steel Industry SEB 181226, Type CLP HC
- ISO 12925-1:1996, Type L-CKC
- Joy Machinery Specification TO-SHEP (ISO VG 320), TO-SMEP (ISO VG 220)
- U.S. Steel 224

**High VI
Synthetic PAO-
Based Extreme-
Pressure
Industrial Gear
Lubricant**





Features/Benefits

- Outstanding oxidation resistance and thermal stability at high temperatures
- Outstanding low-temperature properties
- High viscosity index and low pour point for use over wide temperatures
- Excellent extreme-pressure properties
- Protection against scuffing and wear
- Protects against rust, corrosion, and foaming
- Non-chlorinated additive system
- Suitable for year-round use
- Extended service intervals compared to mineral oil-based gear oils

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Typical Properties					
ISO Grade	150	220	320	460	680
AGMA Grade (obsolete)	4 EP	5 EP	6 EP	7 EP	8 EP
AGMA Classification	AS	AS	AS	AS	AS
Specific Gravity @ 60°F	0.861	0.865	0.866	0.870	0.875
Density, lbs/gal @ 60°F	7.17	7.20	7.21	7.24	7.29
Color, ASTM D1500	1.0	1.0	1.0	1.0	1.0
Flash Point (COC), °C (°F)	249 (480)	249 (480)	249 (480)	249 (480)	249 (480)
Pour Point, °C (°F)	-49 (-56)	-49 (-56)	-44 (-47)	-47 (-53)	-42 (-44)
Viscosity					
cSt @ 40°C	150	220	320	460	680
cSt @ 100°C	20.9	27.5	35.3	47.6	64.4
SUS @ 100°F	769	1,134	1,660	2,392	3,549
SUS @ 210°F	105	135	170	230	311
Viscosity Index	163	161	156	162	166
Acid Number, ASTM D974, mg KOH/g	0.76	0.76	0.76	0.76	0.76
Copper Corrosion, ASTM D130, 48 hrs @ 80°C	1a	1a	1a	1a	1a
Four-Ball EP, ASTM D2783, Weld Load, kgf	315	315	315	315	315
Four-Ball Wear Test, ASTM D4172, Scar Diameter, mm	0.45	0.45	0.45	0.45	0.45
FZG Scuffing Test, ASTM D5182, Failure Load Stage	>12	>12	>12	>12	>12
Oxidation Stability, ASTM D2893B					
Viscosity Increase @ 121°C, %	<6	<6	<8	<10	<10

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/EN/products/Pages/MSDS.aspx>.