SINCE 1839
Schaeffer's
SPECIALIZED LUBRICANTS

TECHNICAL DATA

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ISO 9001 CERTIFIED

#167 MOLY FULL SYNTHETIC GEAR LUBE
SAE 75W-140, ISO GRADES 68 TO 680

Moly Full Synthetic Gear Lube is a multipurpose, thermally stable, thermally durable, extreme pressure, synthetic gear lubricant specially formulated for use in all types of automotive and enclosed gear drives.

Moly Full Synthetic Gear Lube is blended from the highest quality polyalphaolefin synthetic (PAO) base fluids available. These PAO base fluids provide the Moly Full Synthetic Gear Lube with the following advantages.

- **Excellent Low Temperature Properties** - The PAO's low channeling and pour point allow Moly Full Synthetic Gear Lube to lubricate the bearings and gears at sub-zero temperatures the moment they start turning.
- **Superior Oxidation Stability** - All oils, as they are increasingly exposed to high temperature operation undergo a process of oxidation; this results in the oil's thickening and a buildup of acidic components. Because of the synthetic hydrocarbon's uniform molecular structure, the process of oxidation is greatly reduced.
- **Excellent Resistance to Thermal Degradation at High Temperatures.**
- **Excellent Hydrolytic Stability and Demulsibility Characteristics** - Since PAO's are non-polar; they absorb less water, especially in applications that are run under high humidity or high water conditions. They separate condensed water much faster and more completely, thus resulting in the water being easily removed from the system. These properties result in increased bearing and gear life, anti-wear protection, and improved rust and corrosion protection.
- **High Viscosity Index** – results in a minimum change in viscosity. The adequate viscosity for proper bearing and gear lubrication is provided regardless of temperature change.
- **Excellent Stay in Grade Performance Without Addition of Viscosity Index Improver** - The nature and the high viscosity index of the PAO base fluids in Moly Full Synthetic Gear Lube eliminates the use of viscosity index improvers. This results in Moly Pure Synthetic Gear Lube being completely shear stable in service. Moly Pure Synthetic Gear Lube will retain its excellent viscosity-temperature characteristics even under the most severe mechanical shearing that can be encountered.
- **Increased Wear Protection and Longer Gear Life** - When conventional oils are cold, they thicken to the point where distribution of the oil to the bearings and gears is slow or totally stopped. At high operating temperatures conventional oils thin out to the point where there is little or no lubrication to the bearings and gears. PAO's, because of their high viscosity index and low temperature fluidity properties, allow Moly Full Synthetic Gear Lube the ability to lubricate bearings and gears even under the most severe temperature conditions.
- **Compatibility With All Types of Seals**.

Blended into these PAO base fluids is a non-corrosive additive package which provides Moly Full Synthetic Gear Lube with exceptional extreme pressure properties to protect parts from excessive wear, prevent premature bearing fatigue and gear scoring, spalling and pitting. This additive package also provides Moly Full Synthetic Gear Lube with excellent demulsibility characteristics, enhanced protection of components from rust and corrosion in dry conditions in the presence of moisture.

Most gearing is designed to perform under hydro-dynamic lubrication conditions. That is, a full fluid film must separate the metal surfaces of the gears and bearings during operation. However, during periods of cold start up, extremely high operating temperatures or high shock loading conditions this full fluid film can be destroyed. Boundary lubrication is needed to prevent excessive wear when this full fluid film is destroyed.

Micron Moly®, a proven friction reducer, is added to Supreme Gear Lube to provide boundary lubrication. Micron Moly®, a liquid soluble type moly, plates itself to the metal surfaces of the gears and bearings. Once plated, Micron Moly® forms an indestructible, long-lasting, solid lubricant film capable of withstanding pressures up to 500,000 psi. This solid lubricant film, once plated to the gears and bearings, will reduce friction, vibration, and wear, thus extending equipment life.

Moly Full Synthetic Gear Lube, because of the use of PAO base fluids and the addition of Micron Moly®, not only minimizes cold welding but also allows for an increase in gear efficiency. This in turn results in lessened starting loads, a decrease in peak power demand, increased fuel economy (automotive applications), and a reduction in gear box noise and gear box operating temperatures.

Moly Full Synthetic Gear Lube contains the proper additive system to function and lubricate limited slip, positraction, and high offset hypoid gear rear ends and differentials.

Moly Full Synthetic Gear Lube meets and exceeds API Service Classifications: GL-5, MT-1, PG-2; United States Military Specifications: MIL-PRF-2105E, SAE J2360; Mack GO-J; Clark MS-8 Rev. 1; Ford Specifications: M2C119-A, M2C108-C, M2C158-A, M2C192-A; General Motors Specifications: 9985476, 9985044; Chrysler MS-8985; John Deere J11D; Komatsu/Dresser B22-0003; Meritor/ Rockwell Standard O-76L and O-76N; David Brown ET-19; Terex EMS 19003; VME Americas Specifications: EEMS19003F, EEMS19107; Eaton-Roadranger; White Motors MS0016; Volvo; Volkswagen; US Steel 224; David Brown S1.53.101 Type E; AGMA 9005-D94, AGMA 9005-E02, AGMA 250.04, AGMA 251.2; DIN 51517 Part 3 (CLP) and Cincinnati Machine P34, P35, P59, P74, and P76.

TYPICAL PROPERTIES

SAE Grade	**---**	**---**	**---**	**75W-140**	**----**	**---**	**---**
ISO Grade	**68**	**100**	**150**	**220**	**320**	**460**	**680**
AGMA Grade	2EP	3EP	4EP	5EP	6EP	7EP	8EP
Specific Gravity 60°F	0.8418	0.8488	0.8498	0.8558	0.8548	0.8508	0.8488
Viscosity 40°C cSt (ASTM D445)	61.2-74.8	90-110	135-165	198-242	288-352	414-506	612-748
Viscosity 100°C cSt (ASTM D445)	10.28-11.70	14.5-17.0	20.5-23.5	29.5-33.2	38.5-43.0	48.7-54.0	67.0-74.5
Viscosity Index (ASTM D2270)	166	168	171	176	180	181	187
Brookfield Viscosity (ASTM D2983)							
@ -15°F/-26°C, cP	---	---	---	25,200	---	---	---
@ -40°F/-40°C, cP	---	---	---	140,000	---	---	---
Flash Point °F/°C (ASTM D92)*	475º/246.º	484º/251º	496º/258º	489°/254°	514º/268º	513º/267º	529º/276.11º
Fire Point °F/°C (ASTM D97)*	510º/266º	520º/271º	530º/277º	550°/288°	555º/290º	550º/288º	570º/298.89º
Pour Point °F/°C (ASTM D92)	-55º/-48º	-55º/-48º	-50º/-46º	-50°/-46°	-45º/-43º	-30º/-34º	-25º/-31.67º
Rust Test (ASTM D665)							
Procedure A (Distilled Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Copper Strip Corrosion Test (ASTM D130)	1a	1a	1a	1a	1a	1a	1a
Four Ball EP Test (ASTM D2783)							
Weld Point, kg	400	400	400	400	400	400	400
Load Wear Index, kg	55.00	58.25	59.10	60	67.91	69.5	67.91
Four Ball Wear Test (ASTM D4172)							
(1 hr/40 kg/130ºF)							
Scar Diameter, mm	0.4	0.4	0.4	0.35	0.35	0.28	0.28
FZG (ASTM D5182, A/8.3/90)							
Failure Stage	12th	13th	13th	13th	13th	13th	13th
Timken EP (ASTM D2782)							
Ok Load, lbs.	65	65	70	70	70	70	70
Falex EP Continuous Load Procedure A (ASTM D3233)							
Failure Load, lbs.	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Demulsibility (ASTM D2711)							
Free Water, ml	85	85	85	85	85	85	85
% Water in oil	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Emulsion	0	0	0	0	0	0	0
Oxidation Test (ASTM D2893)							
Viscosity Increase after 312 hrs. @ 203ºF/95ºC	2.0%	2.0%	1.5%	1.5%	1.5%	1.5%	1.5%
L-60-1 Thermal Oxidation Test (ASTM D5704)							
% Viscosity Increase	20	20	20	20	20	20	20
Foam Test (ASTM D892)							
Sequence I	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sequence II	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sequence III	0/0	0/0	0/0	0/0	0/00	0/0	0/0

*** Flash Point & Fire Point of Base Oil.**