



# TECHNICAL DATA

102 Barton Street, St. Louis, Missouri 63104

In-State (314) 865-4100/Out of State 800-325-9962/Fax (314) 865-4107 <http://www.schaefferoil.com>

## #267 SUPREME GEAR LUBE

Supreme Gear Lube is a multi-purpose thermally stable and thermally durable para-synthetic gear lubricant that is recommended for use in all types of enclosed industrial and automotive gear drives where extreme pressure characteristics are needed.

Supreme Gear Lube is blended from the finest high quality severely hydro-treated polyalphaolefin (PAO) synthetic base fluids and severely solvent refined, severely hydro-finished pure high viscosity index 100% pure paraffin base oils available. This unique combination provides Supreme Gear Lube with the following advantages:

1. Excellent Low Temperature Properties. This results in the bearings and gears being instantly lubricated at sub zero temperatures the moment they start turning.
2. Superior Oxidation Stability.
3. Excellent Resistance to Thermal Degradation.
4. Excellent Hydrolytic and Demulsibility Characteristics.
5. High Viscosity Index.
6. Increased wear protection and longer gear life.
7. Compatibility with all types of seals.

Blended into these para-synthetic base fluids is a highly specialized non-corrosive thermally stable and thermally durable multi-functional extreme pressure additive package that provides the Supreme Gear Lube with the following performance advantages:

1. Enhanced thermal and oxidation stability and durability to handle operating temperatures of 300°F to 350°F.
2. Excellent extreme pressure properties to protect the gears and bearings from excessive wear and fatigue.
3. Prevention of the formulation of sludge and carbon deposits that can erode seals.
4. Excellent seal compatibility.
5. Enhanced protection of copper, brass and bronze components from corrosion.
6. Non-corrosivity to brass, bronze and other non ferrous metal parts.
7. Excellent protection of components from rust and corrosion in dry conditions and in the presence of moisture.
8. Excellent resistance to water and moisture.
9. Excellent water separability characteristics.
10. Enhanced gear, bearing and seal cleanliness.
11. Excellent resistance to foaming.

The trend among automotive and industrial gear drive manufacturers is to operate the equipment at higher speeds, loads, power densities and increased torque. This trend has resulted in automotive and industrial gear drives being subjected to higher operating temperatures. These higher operating temperatures have resulted in today's gear lubricants being subjected to extreme thermal stress.

Continued On Next Page

TD-267 (Rev. 12/2009)

Therefore, it is important that a gear lubricant possess thermal stability and durability characteristics. Gear lubricants that do not possess these properties rapidly oxidize and decompose when subjected to high temperatures, resulting in the formation of sludge, varnish, and carbon deposits on the gears, bearings and seals, abraded seals, premature seal hardening and brittleness, and a loss of the gear's lubricant's extreme pressure additive chemistries ability to protect against excessive wear, spalling and overall distress to the gears and bearings.

Supreme Gear Lube's para-synthetic base oils and the thermally stable and the thermally durable multi-functional extreme pressure additive package enable the Supreme Gear Lube to resist oxidation and thermal stress at operating temperatures 150°F to 175°F higher than conventional gear lubricants. This results in:

1. A vast reduction in the formation of deposits.
2. Better heat transfer.
3. Excellent protection to the gears and bearings even under the most extreme thermally stressed operating conditions.
4. Less wear to the gears, bearings and seals.
5. Increased oil seal life
6. Lower operating temperatures
7. Less energy consumption
8. Longer lubricant life
9. Less equipment downtime
10. Longer equipment life
11. Reduced maintenance costs.

Most types of gearing are designed to operate under hydrodynamic lubrication conditions. That is a full fluid oil 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. Unless a boundary lubricant is present in the gear lubricant when this full fluid film is destroyed, excessive wear can take place.

To prevent this wear, molybdenum disulfide is further blended into Supreme Gear Lube. Molybdenum provides the boundary lubrication needed by plating itself to the metal surfaces of the gears and bearings. Once plated, molybdenum disulfide forms an indestructible long lasting solid lubricant film that is 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.

The Moly film also provides a smooth finish surface on all of the moving surfaces of the gear drives. This smooth finish minimizes the action of cold welding and vibration, which can occur during start up after the gears have been standing idle and during periods of high shock loading. This in turn lessens starting loads and peak power demand, thus resulting in a realistic power cost savings.

Supreme Gear Lube contains adhesive-cohesive additives that allows the product to tenaciously stick and cling to the gears and bearings. This ensures the Supreme Gear Lube to retain a fine film that "stays put" on the metal surface of the gears and bearings regardless of how thoroughly it is wiped away.

Supreme Gear Lube contains the proper additive system that allows the product to properly function and lubricate limited slip, positraction, and high offset hypoid gear rear ends and differentials.

Continued on Next Page

Supreme Gear Lube meets and exceeds the following specifications and manufacturer's requirements: API Service Classification GL-5, MT-1 and PG-2, Military Specification MIL-PRF-2105E, SAE J2360, Mack GO-J, Clark MS-8 Rev 1, Ford M2C105A, M2C108C, M2C154-A, M2C158-A; General Motors specifications 9985476, 9985044; Chrysler; John Deere JIID; Komatsu-Dresser B-22-003, B22-0005, Rockwell Standard 076-D, Eaton-Fuller's Lubricant Specifications, Terex EEMS19003, VME American's Specifications EMS19003F, EMS19107, White Motors MS0016, Volvo, Volkswagon, US Steel 224, David Brown S1.53101 Type E, AGMA 9005 D-94, AGMA 9005-E02, AGMA 250.04, AGMA 251.02, DIN 51517 Part 3 (CLP), Cincinnati Millicron, P-59, P-74 and P-78.

TYPICAL PROPERTIES

SAE GRADE	80W-90		
ISO Grade	150		220
AGMA Rating	4EP		5EP
Specific Gravity @15°C (60°F)	.89	.892	.8867
Viscosity 100°F SUS (ASTM D-445)	721-842.9	947.50-1323.8	1052.7-1262.1
Viscosity 40°C cSt (ASTM D-445)	137.5-163.00	180-251	200-240
Viscosity 100°C cSt (ASTM D-445)	13.50-19.50	17.50-23.00	18.50-23.00
Brookfield Viscosity cP @ -15°F/-26°C (ASTM D-2983)	-----	135,000	
Viscosity Index (ASTM D-2270)	109	110	112
Flash Point °F/°C (ASTM D-92)	460°/237°	470°/243°	470°/243°
Fire Point (ASTM D-92)	490°/254°	510°/266°	510°/266°
Pour Point °F/°C (ASTM D-97)	-20°/-29°	-20°/-29°	-15°/-26° to -20°/-29°
Rust Test (ASTM D-665)			
Procedure A (Distilled Water)	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass
Copper Strip Corrosion Test, 3hrs. (ASTM D-130)	1a	1a	1a
Four Ball EP Test (ASTM D-2783)			
Weld Point, kg	400	400	400
Load Wear Index, kg.	61.50	65.2	65.20
Four Ball Wear Test (ASTM D-4172)			
1hr/40kg/130°F			
Scar Diameter, mm	0.28	0.28	0.28
Coefficient of Friction	0.1	0.1	0.1
Timken EP Test (ASTM D-2782)			
OK Load, lbs.	70	70	70
Fail Load, lbs	75	75	75
FZG-Four Square Gear Test (D-5182, A/8.3/90)	13 <sup>th</sup>	13 <sup>th</sup>	13 <sup>th</sup>
Falex EP Continuous Load (ASTM D-3233) Procedure A			
Failure Load lbs.	2500	2500	2500
Foam Tendency (ASTM D-892)			
Sequence I	0/0	0/0	0/0
Sequence II	0/0	0/0	0/0
Sequence III	0/0	0/0	0/0
Demulsibility Test (ASTM D-2711)			
Free Water	85	85	85
%Water in Oil	0.5	0.5	0.5
Emulsion	Trace	Trace	Trace
Oxidation Test (ASTM D-2893)			
% Viscosity Increase after 312 hours @95°C/203°F	3	3	3
L-60-1 Thermal Oxidation Test (ASTM D-5704)			
% Viscosity Increase	22	22	22

Packaging: #267 Supreme Gear Lube SAE is available in 420 lb. drums, 225 lb. drums, 120 lb. kegs, 40 lb. pails