

## 214S SUPREME ONE FOR ALL GEAR LUBRICANT SAE 80W-140

Supreme One For All Gear Lubricant is a para-synthetic, shear stable, thermally stable, thermally durable, multi-grade gear lubricant recommended for use in all types of automotive gear drive applications that require a gear oil to operate under severe, wide ambient temperature ranges.

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

- **Excellent low temperature properties which results in the bearings and gears being instantly lubricated at sub-zero temperatures the moment they start turning.**
- **Superior oxidation stability.**
- **Excellent resistance to thermal degradation**
- **Excellent hydrolytic and demulsibility characteristics**
- **Low coefficients of traction, which result in fuel economy benefits.**
- **High viscosity index**
- **Increased wear protection and longer gear life**
- **Compatibility with all types of seals.**

Blended into these para-synthetic base oils is a highly specialized, proprietary, non-corrosive, thermally stable, thermally durable, multifunctional, extreme pressure additive package that provides Supreme Moly One For All with the following advantages:

- **Enhanced thermal and oxidative stability and durability to handle operating temperatures of 300°F to 350°F.**
- **Excellent extreme pressure properties to protect the gears and bearings from excessive wear and fatigue.**
- **Prevention of the formation of sludge and carbon deposits that erode the seals.**
- **Excellent seal compatibility.**
- **Enhanced protection of copper, brass and bronze components from corrosion.**
- **Non-corrosivity to brass, bronze and other non-ferrous metal parts.**
- **Excellent protection of components from rust and corrosion in dry conditions and in the presence of moisture.**
- **Excellent resistance to water and moisture.**
- **Excellent water separability characteristics.**
- **Enhanced gear, bearing and seal cleanliness**
- **Excellent resistance to foaming.**

Supreme One For All contains an extremely shear stable, polymer type, viscosity index improver which provides Supreme One For All with a high viscosity index. These polymers expand as temperature rises and contract as the temperature is lowered allowing Supreme One For All to exhibit low temperature properties to allow the gears and bearings to be safely started at low ambient temperatures and to have the proper viscosity needed at operating temperature and high ambient temperatures in order to minimize wear. This temperature selectiveness also enhances Supreme One For All's high temperature oxidation stability.

The trend among automotive and industrial gear drive manufacturers is to operate the equipment at higher speeds, loads, power densities and increased torque which results in higher operating temperatures and extreme thermal stress on the gear lubricants.

Therefore, it is important that gear lubricants possess thermal stability and thermal durability characteristics. Gear lubricants without these properties rapidly oxidize and decompose at high temperatures which results in: the formation of sludge, varnish, and carbon deposits on the gears, bearings and seals; abraded seals, premature seal hardening and brittleness; and loss of the extreme pressure additives' ability to protect against excessive wear, spalling and overall distress to the gears and bearings.

Supreme One For All resists oxidation and thermal stress at operating temperatures 150°F to 175°F higher than conventional gear lubricants because of the use of para-synthetic base oils and a thermally stable, thermally durable, multifunctional, extreme pressure additive package. This combination provides the following benefits:

- **A vast reduction in the formation of deposits.**
- **Better heat transfer.**
- **Excellent protection to the gears and bearings even under the most extreme thermally, stressed operating conditions.**
- **Less wear to gears, bearings and seals.**
- **Increased oil seal life.**
- **Lower operating temperatures**
- **Less energy consumption**
- **Longer lubricant and equipment life**
- **Reduced equipment downtime and maintenance costs**

Most gearing is designed to perform under hydrodynamic 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 One For All 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.

Micron Moly® also provides a smooth finished surface on all moving parts 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 fuel economy cost savings.

Supreme One For All contains an adhesive-cohesive additive, which allows the product to tenaciously stick and cling to the gears and bearings. This ensures that Supreme One For All retains a fine film that "stays put" on the metal surface of the gears and bearings regardless of how thoroughly it is wiped away.

***Supreme One For All contains the proper additive system to function and lubricate limited slip, positraction, and high offset hypoid gear rear ends and differentials.***

Supreme One For All meets and exceeds the following specifications:

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: M2C-119A, M2C-197-A, MC2108C, M2C158A; General Motors Specifications: 9985476, 9985044; Chrysler; Mercedes MB 235.7; John Deere J11D; Komatsu/Dresser B22-0003; Meritor/Rockwell Standard O-76L; David Brown ET-19; Terex EMS 19003; VME Americas Specifications: EEMS19003F, EEMS19107; Eaton-Roadranger; Dana-Spicer Axle Lubricant Specifications; White Motor MS0016; Volvo; Volkswagen.

## TYPICAL PROPERTIES

<b>SAE Grade</b>	<b>80W-140</b>
Specific Gravity 60°F	0.8548
Viscosity at 40°C cSt (ASTM D445)	198 - 242
Viscosity at 100°C cSt (ASTM D445)	24.00 –28.00
Brookfield Viscosity (ASTM D2983) @ -15°F/-26°C, cP	<150,000
Viscosity Index (ASTM D2270)	150
Flash Point °F/°C (ASTM D92)*	445°/229°
Fire Point °F/°C (ASTM D92)*	480°/249°
Pour Point °F/°C (ASTM D97)	-25°/-32°
Copper Strip Test, 3hrs. (ASTM D130)	1a
Rust Test (ASTM D665)	
Procedure A (Distilled Water)	Pass
Procedure B (Salt Water)	Pass
Four Ball EP Test (ASTM D2783)	
Weld Point, kg.	315
Load Wear Index, kg.	55
Four Ball Wear Test (ASTM D4172)	
Scar Diameter, mm	.25
Timken EP Test (ASTM D2782)	
OK load, lbs.	65
Failure Load, lbs.	70
F Z G (Four Sequence Gear Test (ASTM D5182, A/8.3/90)	13 <sup>th</sup> Stage
Falex Continuous Load (ASTM D3233) Procedure A	
Failure Load, lbs.	2500
Oxidation Test (ASTM D2893)	3%
% Viscosity Increase after 312 hrs. at 95°C	
Demulsibility Test (ASTM D2711)	
Total Free Water, ml	81
% Water in Oil	1
Emulsion, ml	Trace
Foam Tendency (ASTM D892)	
Sequence I 75°F, ml	0/0
Sequence II 200°F, ml	10/0
Sequence III 75°F, ml	0/0
L-60-1 Thermal Oxidation Test (ASTM D5704)	
% Viscosity Increase	22