



TECHNICAL DATA

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#239S SUPER LUBE SUPREME SAE 10, 30, AND 50

CAT T0-4

Super Lube is a premium quality para-synthetic fluid that is specially formulated for use in the lubrication of the drive-train and hydraulic systems of front end loaders, haul trucks, bulldozers and other crawler tractor type equipment common to the construction and mining industries that call for the use of a quality oil.

Today's drive-trains are becoming more complex in design and are using more advanced high-tech materials to improve power transfer. As a result they require fluids that are formulated specifically to optimize friction performance, wear protection, material compatibility and oxidation stability. Because of these aspects the lubricants that are used in this application must be specially formulated to meet and exceed these requirements in order to maximize the life of the friction discs in the powershift transmissions, provide smoother operation and shift handling, reduce wear and maximize equipment life.

These requirements are the driving force behind the Caterpillar specifications which outlines requirements on elastomer seal compatibility, oxidation stability, wear performance and friction properties for fluids that are used in Caterpillar equipment's powershift transmissions, final drives and hydraulic systems. This specification is aimed at improving the performance over that of automatic transmission fluids, universal tractor transmission hydraulic fluids and CD/TO-2 fluids that were previously used in these applications.

One of the keys to the operation of fluids for use in the lubrication of powershift transmissions is the type of additive system that is used in the formulation of these lubricants. The use of the wrong type of additive system can result in the attack of non-metallic materials and components, the altering of static and dynamic coefficients of friction needed to operate the components properly, and stick/slip and noise in the powershift transmission, along with a potential safety threat on units that contain wet brakes. This safety threat can cause stopping distances to be longer and when the wet brakes are used for parking cause a stick/slip phenomenon to occur which can lead to a unit that is parked on an incline to move at a barely detectable speed.

Super Lube Supreme is blended from the finest severely hydro-treated polyalphaolefin synthetic base fluids and severely solvent refined severely hydro-finish 100% pure paraffin base oils available. This unique combination provides Super Lube Supreme with superior oxidation, excellent film strength resistance, thermal stability and excellent resistance to thermal degradation and lower volatility.

Blended into these para-synthetic base fluids is a very specialized non-corrosive high tech additive package that provides excellent wear protection and material compatibility while maximizing equipment life.

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This specialized high tech additive package allows the Super Lube Supreme to provide the following performance benefits:

1. Stable and controlled friction performance with various metallic and non-metallic friction materials that are used in power-shift transmissions. This results in the elimination of problems with excessive noise, weakness of the bindings in paper materials, and embitterment of elastomeric materials.
2. Elimination of clutch slippage even under heavy loads on steep inclines.
3. Elimination of the need to constantly adjust equipment in order to maintain a proper clutch setting.
4. Excellent oxidative and thermal stability in order to prevent and eliminate the formation of sludge and varnish that can damage seals and elastomeric clutch materials.
5. Excellent wear protection.
6. Excellent compatibility with all types of seal and elastomeric materials commonly used in power-shift transmissions.
7. Excellent stay-in-grade performance and shear stability in order to provide long term anti-wear protection and sustained applied pressure. Super Lube Supreme does not contain viscosity index improvers.
8. Superior protection against copper corrosion and rust.
9. Very good low temperature fluidity in order to provide easier cold weather starting and better wear protection under these conditions.
10. Excellent protection against foaming. This ensures that no air can become entrained into the fluid that could lead to metal-to-metal contact and wear.
11. Longer drain intervals.
12. Less downtime and longer trouble-free equipment life and operation.

Further blended into the para-synthetic base oils and the highly specialized additive package is Micron Moly®. Micron Moly® is a liquid soluble type of moly that plates itself to the metal surfaces of the various components, thus forming a solid lubricant film that is able to withstand pressures up to 500,000 lbs. per square inch. This translates into better wear protection for the metallic components of the power-shift transmission and for the hydraulic system, thus extending operating life and providing an extra margin of safety for service.

Super Lube Supreme can also be used in Allison transmissions that call for a C-4 type fluid, Eaton-Roadranger and Meritor transmissions and the hydraulic systems of front end loaders, haul trucks, bulldozers and other crawler tractor type equipment that are common to the construction and mining industries.

Super Lube Supreme meets and exceeds the following specifications: API Service Classifications GL-1, GL-2, and GL-3; Caterpillar T0-4, Allison C-4 and Komatsu KES 07.802, ZF TE-ML 03 Off Highway Powershift Transmissions Specification, Eaton-Roadranger Transmission Lubrication Specifications, Meritor Transmission Lubrication Specifications and Sperry Vickers M2950S.

CAUTION: This oil is specially formulated for use in power-shift transmissions. Do not use in diesel engines. Shortened engine life could result due to heavy piston deposits.

SAE Grade	10	30	50
Specific Gravity	.8664	.8908	.8986
Viscosity@40°C Cst (ASTM D-445)	34.39-38.75	82.89-106.31	199.64-218.31
Viscosity@100°C Cst (ASTM D-445)	6.0-6.50	10.5-12.5	18.6-19.7
Viscosity Index (ASTM D-2270)	120	110	103
Brookfield Viscosity (ASTM D-2983)			
cP @ -31°F/-25°C	90,000	---	---
cP @ -13°F/-25°C	---	105,000	---
cP @ -15°F/-5°C	---	---	118,500
MRV Low Temperature Pumpability (ASTM D-4628)			
cP @ -13°F/-25°C	5,550	---	---
cP @ -5°F/-15°C	---	7,000	---
cP @ -25°F/-5°C	---	---	9,500
High Temperature, High Shear @302°F/150°C, cP	3.2	4.0	5.3
Flash Point °F/°C (ASTM D-92)	425°/218.33°	470°/243.35°	510°/265.56°
Fire Point °F/°C (ASTM D-92)	455°/229.44°	500°/260°	550°/287.78°
Stable Pour Point °F/°C (FTM 7916 Method 203)	<-41°/<-42°	---	---
Four Ball EP Test (ASTM D-2783)			
Weld Point, kg	250	250	250
Load Wear Index	48.91	49	49
Four Ball Wear (ASTM D-4172)			
Scar Diameter, mm	.4	.4	.4
Timken EP Test (ASTM D-4172)			
OK Load, lb	60	60	60
Foam Test (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
Foam Test (ASTM D-892)			
Sequence I with 0.1% water	0/0	0/0	0/0
Sequence II with 0.1% water	0/0	0/0	0/0
Sequence III with 0.1% water	0/0	0/0	0/0
FZG Gear Test, 100 RPM, 121°C, 20 hrs. Load Stage 10 (ASTM D-4998) mg of weight loss	50	50	50
Vickers 35 VQ25 Pump Wear Test			
mg wt loss on vanes	12	10	---
mg wt loss on ring	30	25	---
Rust Test (IH BT-9)	Pass	Pass	Pass
Fluid Compatibility (CAT Procedure)	No sediment No Precipitation	No Sediment No Precipitation	No Sediment No Precipitation
Homogeneity (CAT Procedure)			
Friction Property VC70 Friction	Pass	Pass	Pass
Fluroelastomer Seal Test (CAT Procedure)	Pass	Pass	Pass
Allison C-4 Seal Test	Pass	Pass	Pass
Allison C-4 THOT			
Tan Increase	1	1	1
Carbonyl	0.6	0.6	0.6
Viton Seal	Pass	Pass	Pass
Sludge	None	None	None
Copper Strip Corrosion Test (ASTM D-130)	1a	1a	1a
Sulfated Ash Content % wt (ASTM D-874)	1.6	1.6	1.6

Packaging: #239S Super Lube Supreme is available in 410 lb. drums, 225 lb. drums and 37 lb. pails.