

239S020 SUPER LUBE SUPREME ARCTIC SAE 0W-20

Super Lube Supreme Arctic is a premium high performance full synthetic, multi-grade fluid that is specially formulated to provide superior protection and performance in transmissions, torque convertors, final drives, hydraulics and wet brakes as well as machines with combined systems in Caterpillar and other OEM front end loaders, haul trucks, dozers and other heavy duty off-road equipment used in the construction and mining industries particularly during cold temperature operation. Super Lube Supreme Arctic is specially formulated and engineered to meet and exceed the rigorous specifications of Caterpillar's TO-4 specification. Super Lube Supreme Arctic is also meets the following original equipment manufacturer requirements:

- Allison C-4
- Komatsu Micro-Clutch
- Vickers 35VQ25

Super Lube Supreme Arctic is blended from a unique combination of select synthetic base fluids. This unique combination provides Super Lube Supreme Arctic with the following advantages:

- Superior low temperature pumpability
- Improved cold weather startability and less engine drag during start-up
- Excellent protection for components during cold weather operation
- A wide ambient temperature operating range
- Exceptional resistance to thermal degradation to prevent the formation of high temperature deposits
- Exceptional oxidative and thermal stability
- Exceptional low volatility characteristics
- Enhanced film strength at high operating temperatures
- Low coefficients of traction, which result in improved fuel economy benefits
- Compatibility with all elastomers and transmission friction materials, resulting in longer component life and reduced seal leakage

Blended into these synthetic base fluids is a very specialized non-corrosive high performance additive system, that provides excellent wear protection and material compatibility while maximizing equipment life and a highly shear stable viscosity index improver. This combination allows the Super Lube Supreme Arctic to provide the following performance benefits:

- Balanced and controlled static and dynamic friction performance to provide optimized clutch friction retention and slippage control.
- Elimination of clutch slippage even under heavy loads on an incline.
- Elimination of the need to constantly adjust equipment in order to maintain a proper clutch setting.
- Efficient transmission clutch operation and optimum torque transfer.
- Increased transmission clutch life and prevention of clutch chatter
- Increased machine breakout force
- 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.
- Excellent wear protection for gears, bearings and friction materials.

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- Excellent compatibility with all types of seal and elastomeric materials commonly used in power-shift transmissions.
- Excellent stay-in-grade performance and shear stability in order to provide long term anti-wear protection and sustained applied pressure.
- Superior protection against copper corrosion and rusting of ferrous metal parts.
- Excellent low temperature fluidity in order to provide easier cold weather starting and better wear protection under low temperature operating conditions.
- Excellent wear protection to provide superior anti-wear protection to high pressure hydraulic systems.
- Excellent protection against foaming even with water contamination. This ensures that no air can become entrained into the fluid that could lead to metal-to-metal contact and wear.
- Maximum equipment reliability and productivity
- Longer drain intervals.
- Longer equipment life and reduced risk of premature component failure.
- Less downtime and longer trouble-free equipment life and operation

Further blended into the synthetic base oils, the highly specialized additive package and the highly shear stable viscosity index improver is Micron Moly®. Micron Moly® is a liquid soluble type of moly that plated 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 Arctic meets and exceeds the following specifications: Caterpillar TO-4; Allison C-4; Komatsu KES 07.802; Komatsu KES 07.868.1, Komatsu-Dresser; Tremec TTC; Terex Construction Equipment; Vickers M2950S and Vickers 35VQ25.

Super Lube Supreme Arctic is not recommended for farm tractor equipment that employs a common reservoir for transmission and hydraulic systems or those Allison Transmission on-highway applications that specify the use of a fluid that meets TES-295 or TES 389 specifications

TYPICAL PROPERTIES

SAE Grade	0W-20
Specific Gravity @ 60°F (15.5°C)	0.8511
Viscosity @ 40°C ASTM D-445	34.5-41.0
Viscosity @ 100°C ASTM D-445	7.0-8.5
Viscosity Index ASTM D-2270	183
Brookfield Viscosity, cP @ -25°C ASTM D-2893	2,829
Brookfield Viscosity, cP @ -35°C ASTM D-2893	9,928
Brookfield Viscosity, cP @ -40°C ASTM D-2893	21,195
Low Temperature Pumpability Viscosity, cP @ -40°C ASTM D-4684	16,600
High Temperature High Shear Viscosity, cP ASTM D-4683	2.67
Flash Point °F (°C) ASTM D-92	410° (210°)
Pour Point °F (°C) ASTM D-97	-71° (-57°)
Four Ball EP Test ASTM D-278 Weld Point, kg	250
Four Ball Wear ASTM D-4172 Scar Diameter, mm	0.38
Foam Test (ASTM D-892)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
FZG Gear Test, 100 RPM, 121°C, 20 hrs.	
Load Stage 10 (ASTM D-4998) mg of weight loss	50

Vickers 35 VQ25 Pump Wear Test	
Mgs of weight loss on vanes	12
Mgs of weight loss on rings	30
Rust Test (IH BT-9)	Pass
Homogeneity (CAT Procedure)	No precipitation
Friction Property VC70 Friction	Pass
Allison C-4 THOT	
Tan Increase	1
Carbonyl	0.6
Viton Seal Compatibility	Pass
Sludge	No sludge
Copper Strip Corrosion Test (ASTM D-130)	1a
Sulfated Ash Content % wt (ASTM D-874)	1.6