



Powershift Transmission Fluid

Kendall® Powershift Transmission Fluid is a high-performance multi-functional fluid developed for use in transmissions, final drives and hydraulic systems of off-highway equipment where a fluid meeting Caterpillar TO-4 performance requirements is specified. It provides substantially improved friction and antiwear performance compared with older API CD/TO-2 quality fluids, resulting in longer equipment life and reduced risk of field failure. The SAE 10W and 30 viscosity grades also are recommended for use in Allison off-highway heavy-duty automatic transmissions where a C-4 quality fluid is specified.

Powershift Transmission Fluid is formulated with state-of-the-art additive technology that provides improved deposit control, corrosion protection and load-carrying capacity for better equipment protection and more reliable operation. Its carefully optimized frictional properties prevent clutch slippage for smoother, more consistent transmission operation and also provide improved wet brake performance.

Applications

- Powershift transmissions, hydrostatic transmissions, torque converters, final drives and hydraulic systems of Caterpillar, Euclid, Komatsu and other off-highway construction and mining equipment
- Heavy-duty automatic transmissions where the OEM specifies an Allison C-4 quality fluid
- Heavy-duty manual and semi-automatic transmissions in trucks and buses where the OEM specifies a Caterpillar TO-4 quality fluid or a heavy-duty engine oil

Note: Typically, the SAE 10W and 30 viscosity grades are recommended for hydraulic systems and transmissions, and the SAE 50 viscosity grade is recommended for differentials, final drives and heavy-duty manual transmissions. Refer to the OEM recommendations for selection of the proper viscosity grade.

Powershift Transmission Fluid SAE 30 is OEM-approved for service fill in the following applications:

- Allison TES-439, for off-highway applications (approval no. 439-33422013)

Powershift Transmission Fluid meets or exceeds the requirements of:

- Caterpillar TO-4, TO-2⁽¹⁾
- Vickers (Eaton) M-2950-S

⁽¹⁾obsolete specification

Powershift Transmission Fluid is recommended for service fill in:

- ZF torque converter transmissions in off-highway equipment where the OEM specifies a TE-ML 03C quality lubricant (SAE 10W, 30)

Caterpillar TO-4 Fluid for Off-Highway Equipment



Features/Benefits

- Well-balanced frictional properties for efficient clutch operation and improved wet brake performance
- Excellent oxidation resistance and thermal stability for long fluid life
- High load-carrying capacity for protection of final drive gear sets
- Excellent deposit control and wear protection
- Protects yellow metals against corrosion
- High shear stability
- Compatible with a wide variety of seals and friction materials
- Good low-temperature properties
- Good foam resistance

Powershift Transmission Fluid

Typical Properties			
Grade	10W	30	50
Specific Gravity @ 60°F	0.876	0.884	0.891
Density, lbs/gal @ 60°F	7.29	7.36	7.42
Color, ASTM D1500	2.5	3.0	4.0
Flash Point (COC), °C (°F)	213 (415)	233 (451)	242 (468)
Pour Point, °C (°F)	-39 (-38)	-33 (-27)	-28 (-18)
Viscosity, Brookfield			
cP @ -35°C	45,500	---	---
Viscosity, Kinematic			
cSt @ 40°C	44.0	98.0	227
cSt @ 100°C	6.6	11.1	19.1
Viscosity Index	101	98	95
Total Base Number, ASTM D2896	7.6	7.6	7.6
Zinc, wt %	0.110	0.110	0.110

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via <http://www.phillips66.com/SDS>

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Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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