



TRANS OILS SAE 10W, 30, 50 and 60

PRODUCT DESCRIPTION

Hi-Tec Trans Oils are specialised Transmission and Drive Train Oils (TDTO) which have been formulated to meet the special requirements of the Caterpillar TO-4™ (2005 revision) specification. They greatly reduce gear wear, improve friction control, promote long life in transmissions and brakes, and ensure less brake noise and increased rimpull. **Hi-Tec Trans Oils** are not compromise fluids as are conventional powershift fluids, which are fundamentally engine oils meeting the former less restrictive CAT TO-2™ and Allison C-2 specifications.

The individual additive components of **Hi-Tec Trans Oils** were specially selected to balance and control the friction performance of the materials comprising the metallic and the newer non-metallic clutch surface materials. The frictional properties uniquely provided by **Hi-Tec Trans Oils** overcome problems of excessive brake noise, weakening of the binders in paper surface materials and embrittlement of elastomeric materials. **Hi-Tec Trans Oils** stable friction properties eliminate clutch slippage even under heavy loads on steep inclines. There is no need to constantly adjust equipment to maintain clutch settings.

The excellent anti-oxidation properties of **Hi-Tec Trans Oils** together with the resistance to sludge formation provide longer oil drain intervals and far more reliable equipment operation. The low temperature fluidity of **Hi-Tec Trans Oils** ensures easier cold weather starting and improved wear protection with low temperature start-ups.

Long term anti-wear protection to gears and bearings is assured by the inclusion of special anti-wear additives. The foam inhibitors in **Hi-Tec Trans Oils** provide effective protection against foam development thus avoiding metal-to-metal contact and further minimising wear. Long term rust and corrosion protection to steel and copper-based metal is assured by the inhibitors in **Hi-Tec Trans Oils**.

RECOMMENDATIONS

Hi-Tec Trans Oils are recommended for many heavy duty transmissions and drives in a wide range of automotive, mining, agricultural and earthmoving applications and particularly:

Caterpillar™ Transmissions

Hi-Tec Trans Oils meet the Caterpillar TO-4™ performance specifications and may be used in manual transmissions which have the API-CD/Caterpillar TO-2™ oil recommendation.

Hi-Tec Trans Oils transmission fluids are the ideal product for Final Drives:

Track type: tractors, pipe-layers, skidders, loaders and track excavators

Wheel Type: tractors, loaders, skidders, compactors, motor graders, off-highway tractors and trucks.

Allison Transmissions

Hi-Tec Trans Oil SAE 30 meets Allison C-4 specification and can be recommended wherever an Allison C-4 (or C-3) level fluid is required.

Fuller Road Ranger Transmissions

Hi-Tec Trans Oil SAE 50 is also suitable in manual gearboxes specifying an SAE 50 engine oil or an SAE 90 gear oil up to API GL-3.

SPECIFICATIONS

Hi-Tec Trans Oils meet or exceed the following demanding performance requirements:

- Caterpillar TO-4™ (Version 2005) and Caterpillar TO-2™ (obsolete)
- Komatsu Dresser and Komatsu KES 07.868.1 powertrain fluid
- Dana Powershift: SAE10W and SAE30
- Allison C-4 and Allison C-3 (obsolete): SAE 10W and SAE30
- API: GL-3, GL-4 Gear Wear Protection Capability
- API: CF & CF-2 (SAE 30, 40, and 50 in case of misapplication as an engine oil)
- ZF TE-ML03C (converter Transmissions for off-road equipment): SAE10W and SAE30
- ZF TE-01 (list obsolete): SAE30 and SAE50
- Eaton: SAE50
- Vickers 35 VQ25: SAE10
- Tremec/TTC: SAE50
- Spicer Clark-Hurth: SAE 10W and SAE30

Always consult your vehicle owner's manual for the manufacturer's recommendations.

TYPICAL PROPERTIES

Property	ASTM Method	Trans Oil			
		SAE 10W	SAE 30	SAE 50	SAE 60
Item Code (HI3-)	-	2510	2515	2519	2520
Density (kg/ltr) @ 15°C	D-129	0.880	0.901	0.909	0.913
Viscosity (cSt) @ 40°C	D-445	39	96.8	203	310
Viscosity (cSt) @ 100°C	D-445	6.0	11.0	18	24
Viscosity Index	D-2270	96	98	97	98
Pour Point (°C)	D-97	-30	-30	-27	-27
Flash Point COC (°C)	D-92	>200	258	261	267
Carbon Residue, Conradson - % Mass (in excess of Ash)	D-524	0.08	0.08	0.11	0.12
Copper Strip Corrosion - 3 hours at 100°C	D-130	1a	1a	1a	1a
Foaming Characteristics - Sequence I, II, III	D-892	Nil	Nil	Nil	Nil
Total Base Number (mg KOH/g)	D-2896	7.6	7.6	7.6	7.6
Calcium (% wt)	IP308	0.207	0.207	0.207	0.207
Phosphorus (% wt)	D1091	0.113	0.113	0.113	0.113
Zinc (% wt)	IP308	0.124	0.124	0.124	0.124
Colour	Visual	Amber	Amber	Amber	Amber