



## Transmission Fluid TO-4

Bel-Ray® TO-4 heavy duty transmission and drive train multi-functional lubricants are specifically formulated to meet Caterpillar's TO-4 and Caterpillar TO-4M requirements. Coupled with select base oils, Bel-Ray's balanced additive technology provides maintenance managers piece of mind, standing up to the rigorous and severe operating conditions in off-highway industries including: mining, construction, quarrying, and agriculture. Bel-Ray TO-4 heavy duty transmission and drive train multi-functional lubricants contains balanced additive technology that provides the friction control, low gear wear, good elastomer compatibility and oxidation stability performances, required to meet the specifications for power shift transmissions, final drive and hydraulic systems. TO-4 supersedes and replaces Caterpillar TO-2.

### EQUIPMENT BENEFITS

- Reduced gear wear and extended life in transmissions, gearboxes, and final drives
- Extended service capable with used oil analysis program
- Provides maximum power transfer throughout the lube interval
- Formulated to keep metal parts clean to prevent unwanted break-down
- Compatible with new and traditional seal materials

### PRODUCT FEATURES

- Superior gear wear control
- Shear stable viscosity modifiers keep oil in grade throughout drain life
- Excellent friction properties prevent clutch slippage
- Outstanding rust and copper corrosion protection
- Protects and conditions all seals for longer life

### APPLICATIONS

#### APPROVALS :

- ZF TE-ML-03C
- ZF TE-ML-07F

#### PERFORMANCE LEVELS :

- CAT TO-4 and TO-4M
- Allison C4
- Komatsu KES 07.868.1 (2002)
- API MT-1
- \*API CF

\*Demonstrates API CF performance, providing protection in case of accidental use in diesel engines, provided the drain interval is shortened.

Transmission Fluid TO-4				
Typical Physical Properties				
Property	Test Method	TO-4 10W	TO-4 30W	TO-4 50W
API Gravity @ 60°F	D4052	31.0	28.8	26.6
Density@15°C, g/cm <sup>3</sup>	D4052	0.8703	0.8822	0.8945
Viscosity @ 40°C, cSt	D445	33.3	89.0	259.0
Viscosity @ 100°C, cSt	D445	5.3	10.9	19.1
Viscosity Index	D2270	108	107	97
Flash Point, °C (°F)	D93	193 (397)	201 (394)	212 (414)
Pour Point, °C (°F)	D97	-45 (-49)	-36 (-33)	-27 (-17)
Zinc, wt%	D6481	0.107	0.107	0.107
Pounds per Gallon	D1250	7.251	7.350	7.453

*Minor variations in typical physical properties may occur from normal manufacturing processes*

#### DISTRIBUTED BY:

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