



# STAR MAX FE 10W-30



Very high performance "Low SAPS" lubricant specially developed for the lubrication of materials used in earthmoving, minings or quarries, providing substantial economies within the fuel consumption reduction.

## PERFORMANCE LEVELS

API CJ-4 / CI-4+ / CI-4 / CH-4 / SL  
ACEA E9 / E7 / E5 / A3/B4  
JASO DH-2



### Engine application

Approved according to :

- ✓ CUMMINS CES 20081
- ✓ DEUTZ DQC III-10 LA
- ✓ MTU Category 2.1
- ✓ MAN M 3575
- ✓ VOLVO VDS-4
- ✓ MB Approval 228.31
- ✓ RENAULT RLD-3

Conform to the OEM's specifications

- ✓ CATERPILLAR ECF-3 / ECF-2 / ECF-1a
- ✓ DETROIT DIESEL 93K218

Recommended for the TIER 4F engines :

- ✓ KOMATSU
- ✓ HITACHI
- ✓ PERKINS
- ✓ LIEBHERR
- ✓ CASE...

### Gearbox application

API GL-4

Conforms to the specifications :

- ✓ ZF TE ML 07D
- ✓ CATERPILLAR TO-4 (SAE10W, 30)
- ✓ CATERPILLAR SATO
- ✓ ALLISON TES 439
- ✓ KOMATSU Clutch test
- ✓ ALLISON C4

Recommended for Gearboxes :

- ✓ DANA, KOMATSU, EATON...

### Hydraulic system application

ISO VG 46 (after 100 working hrs) HV

Suitable in place of following products :

- ✓ JCMA HK 46W (Extended drain)
- ✓ CATERPILLAR HYDO Advanced 10W, 20 & 30
- ✓ KOMATSU HO-46 (HV)
- ✓ CNH MAT 3509 - CASE MS 1230

## APPLICATIONS

TOTAL STAR MAX FE 10W-30 lubricates the Diesel engines of the last generation, notably the engines compliant to the TIER 1, 2, 3 or 4final (Euro Stage I, II, III or IV) standards.

It can lubricate the small gasoline or gas engines and the piston-compressors.

TOTAL STAR MAX FE 10W-30 applies in all hydraulic systems, high or low pressure, equipped with very high performance filters

TOTAL STAR MAX FE 10W-30 lubricates the oldest or current gearboxes, manual or powershift.

TOTAL STAR MAX FE 10W-30 can be used in all seasons due to its high viscosity index:

- Very fluid at cold temperature, with easy cold starting of organs with an effective and rapid filtration, even in winter season.
- Thick at high temperature, keep an optimal lubrication and a low oil consumption due to its no-conventional base oil components.

## PERFORMANCES AND CUSTOMER BENEFITS

- Allows to strongly decrease the lubricant number needed for the whole vehicle park maintenance and avoids all lubricant mistakes
- Reaches the highest quality levels required by the manufacturers for their engines (E9/CJ-4), transmissions (GL-4/TO-4) and hydraulics systems (HK/HV)
- Enable longer drain intervals up to the maximum allowed by the OEMs
- Self-adaptive, its patented formulation fits to the lubricated organ requirement
- Provides substantial economies by reducing the fuel consumption (CIFE process)
- Helps to decrease the exhaust Carbon Dioxide (CO2) production
- Its Low-SAPS chemistry is recommended for engines equipped with exhaust gas after-treatment systems, like DPF, SCR, catalysator....

## PHYSICAL AND CHEMICAL CHARACTERISTICS\*

		Method	Value
Kinematic Viscosity at 40°C	mm <sup>2</sup> /s	ASTM D445	73
Kinematic Viscosity at 100°C	mm <sup>2</sup> /s	ASTM D445	12.1
Viscosity Index	-	ASTM D2270	163
Pour Point	°C	ASTM D97	-42
T.B.N	mgKOH/g	ASTM D2896	10.5
Sulphated Ash	% m/m	ASTM D874	1.0
Zinc value	ppm		>900

\* The features mentioned above are average values obtained with some variability in production and do not constitute a specification.

### TOTAL LUBRIFIANTS

562, avenue du Parc de l'Ile  
92029 Nanterre cedex  
FRANCE

### TOTAL STAR MAX FE 10W-30

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[www.lubricants.total.com](http://www.lubricants.total.com)



This lubricant does not cause adverse health effects when used in the intended application.

A safety datasheet is accessible on request from your local dealer or on the website [www.quickfds.com](http://www.quickfds.com)