



Product Data Sheet

ESSO XD-3 EXTRA CJ-4

PREMIUM HEAVY DUTY ENGINE OIL

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ESSO XD-3* EXTRA CJ-4 is Imperial Oil's best universal heavy duty diesel engine oil designed for emission controlled engines equipped with Diesel Particulate Filters (DPFs) and older emission controlled engines. It is a premium performance product formulated for severe diesel and gasoline engine service. Esso XD-3 Extra CJ-4 15W-40 meets API CJ-4, CI-4 PLUS, CI-4, Mack EO-O Premium Plus, Cummins CES 20081, Caterpillar ECF-3, DD Power Guard 93K218, ACEA E7, and Volvo VDS-4

- ◆ Extended engine life from reduced engine wear and viscosity control
- ◆ Bearing protection by controlling lead wear
- ◆ Reduced oil consumption from improved engine deposit control
- ◆ Control of soot induced viscosity thickening from potent dispersant package
- ◆ Available as a 15W-40 grade
- ◆ A universal oil meeting needs of diesel engines, gasoline engines, and hydraulics

Primary Applications

ESSO XD-3 EXTRA CJ-4 engine oil is recommended for use in gasoline and diesel engines operating in moderate and severe service applications. This includes engines on-highway, off-road, construction, farm, woodlands, marine and stationary power plants using ULSD (15 ppm sulphur) or LSD (500 ppm Sulphur) fuel. ESSO XD-3 EXTRA CJ-4 is recommendation for operations using a variety of power sources in mixed fleets.

Diesel Engine Service

ESSO XD-3 EXTRA CJ-4 is recommended for most naturally aspirated and high-output turbocharged diesel engines, including Cummins, Mack and Detroit Diesel's latest low-emission 4 stroke designs with exhaust gas recirculation (EGR) and diesel particulate filters (DPFs).

Gasoline Engine Service

ESSO XD-3 EXTRA CJ-4 is recommended for use in gasoline engines requiring API SM, SL, SJ, or SH, performance categories

Hydraulics

ESSO XD-3 EXTRA provides excellent hydraulic fluid performance in auxiliary systems on farm and construction equipment.

Performance Features

Field Proven

Esso's commitment to our field test program began in 1970, and has now accumulated over 400 million kilometers in various engines including Cummins, Caterpillar, Volvo, Detroit Diesel and Mack. These field tests also include the latest low emission technology engines.

The field test program is designed to make ESSO XD-3 EXTRA an industry leading product. This is achieved by rating engine components (pistons, rings, liners, bearings and valve train components) and used oil samples to identify the best performing candidate formulation.

Longer Oil Life

ESSO XD-3 EXTRA CJ-4 has powerful anti-oxidants and inhibitors to handle the stress from increased power ratings and higher combustion temperatures.

Potent oxidation inhibitors reduce the rate of oil breakdown. Powerful dispersants and inhibitors prevent soot related viscosity thickening and ensure slow TBN depletion. Combined, these keep the oil performing better, longer.

Soot Control

Oil soot loading has increased significantly with low-emission heavy duty diesel engines. ESSO XD-3 EXTRA CJ-4 has a carefully balanced dispersant inhibitor additive package that controls soot-induced viscosity increase, therefore extending the useful life of the oil. Soot can also cause wear of diesel engine roller-follower bushings and cross-over linkages. XD-3 EXTRA CJ-4 15W-40 has been formulated to exceed the requirements of the API CJ-4 engine tests designed to load the oil with soot: the Cummins ISM and ISB, the Mack T-12 and the Mack T-11 and the Roller Follower Wear Test. Also, field testing has proven that ESSO XD-3 EXTRA CJ-4 provides excellent soot wear protection.

Deposit Control

In order to protect against high oil consumption, bore polishing, ring sticking and liner scuffing, ESSO XD-3 EXTRA CJ-4 is formulated with a powerful detergent-dispersant additive package which has demonstrated industry leading deposit control.

Wear Protection

ESSO XD-3 EXTRA CJ-4 has shown excellent wear protection in severe field testing. It is formulated to minimize corrosive wear and acid build-up from acidic combustion gases. Potent anti-wear additives protect heavily loaded cam and lifter assemblies in modern diesel and gasoline engines.

Total Base Number (TBN) Retention

ESSO XD-3 EXTRA CJ-4 has excellent TBN retention during operation as demonstrated in field tests. This ensures excellent corrosive wear protection and longer, useful oil life.

Viscosity Control

ESSO XD-3 EXTRA CJ-4 is formulated to offer the best balance between viscosity loss due to shearing, and viscosity increase due to oil degradation, contamination and soot loading. Excellent low temperature stay-in-grade performance helps improve cold starting.

Longer Bearing Life

Powerful corrosion inhibitors minimize the corrosive attack on copper-lead or bronze bearings. Multigrades also contribute to reduced bearing wear. In many instances, there is so little wear that the cavitation erosion pattern remains in the overlay. Some operators interpret this to be a problem when, in fact, it is the result of reduced wear.

Foam Control

An anti-foam additive controls foaming and air entrainment while in operation. Both problems can be critical, particularly with hydraulic systems, transmissions and engines equipped with hydraulically-actuated electronic unit injectors (HEUI).

Extended Seal Life

ESSO XD-3 EXTRA CJ-4 is formulated to be compatible with commonly used elastomers. This leads to extended seal, gasket and clutch component life.

Glycol Negativity

During colorimetric glycol testing, some new oils will show positive results. This can be confusing and expensive for conscientious operators. ESSO XD-3 EXTRA CJ-4 is glycol negative meaning that if there is no coolant in the oil, the test will not give you a false indication that it is present.

Oil Drain Intervals

The preferred oil drain interval (ODI) is recommended by the original equipment

manufacturer (OEM) and is typically specified for severe service. Variables controlling the ODI recommendation include the duty cycle and the operating conditions of the engine. Optimization of the ODI to either extend or shorten the interval for a particular application should be based on careful consideration of the service severity.

ESSO XD-3 EXTRA CJ-4 has the performance capability for extended oil drains. However, the benefits and potential risks of oil drain extension need to be carefully considered and endorsed with an appropriate equipment operation review and oil analysis program. A special Esso lubrication guide outlining all the advantages and disadvantages of extending ODI is available from your Esso representative.

Low Emission Engines With EGR and/or DPFs

Low emission on-highway engines tend to put more stress on the oil by adding increased levels of soot and acidic material to the oil. The oil needs to keep this soot dispersed to minimize its abrasiveness and neutralize the acidic material. To prevent the accumulation of harmful high levels of soot in the oil, the oil must be changed at a suitable drain interval. To protect the Diesel

Particulate Filters (DPFs) on the latest emission controlled engines XD-3 Extra CJ-4 meet the maximum compositional limits of, 1% SASH, 0.12 wt% phosphorus and 0.4 wt% sulphur.

Precautions

ESSO XD-3 EXTRA CJ-4 is manufactured from high quality petroleum base stocks, carefully blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact to skin, splashing into the eyes, ingestion or vapour inhalation. Special care is also recommended in handling used motor oils. An ESSO Service Data Sheet entitled "Safe Handling of Used Motor Oils" is available on request from your ESSO Representative. Please refer to our ESSO Material Safety Data Sheet for further information.

Note: This product is not controlled under Canadian WHMIS legislation.

Grade Specific Recommendations ¹

SERVICE	15W-40
CJ-4	R
CI-4 PLUS	R
CI-4, CH-4	R
CG-4, CF-4	R
SM	R
SL, SH	R
ACEA E7, E5	R
Daimler-Chrysler 228.3	R
Mack EO-O Premium Plus	R
Mack EO-N Premium Plus 03	R
Cummins CES 20081	R
Cummins CES 20077	R
Cummins CES 20078	R
Cummins CES 20076, 71	R
Caterpillar ECF-3	R
DDC 7SE 270 (4 Stroke)	R
DD Power Guard 93K218	R
DD Power Guard 93K214	R
Volvo VDS-4, VDS-3,	R
Volvo VDS-2	R
MTU-2	R
Caterpillar T0-2	R

¹- R = recommended for applications requiring indicated service level

Typical Properties

	15W-40
Density kg/m ³	873
Kinematic Viscosity, cSt	
@ 40°C	110
@ 100°C	15.0
Viscosity Index	142
CCS Viscosity, P	
@ -20°C	63
MRV Viscosity, P	
@ -25°C	289
Pour Point, °C	-30
Flash Point, COC, °C	215
Colour, (ASTM)	3.0
TAN (D 664)	2.8
TBN (D 2896)	8.6
Sulphated Ash, wt. %	0.99

* The values shown above are representative of current production. Some are controlled by manufacturing and performance specifications while others are not. All may vary within modest ranges and are subject to change without notice.