



SHELL ROTELLA® T4 Triple Protection® 10W-30 ENGINE TEST RESULTS

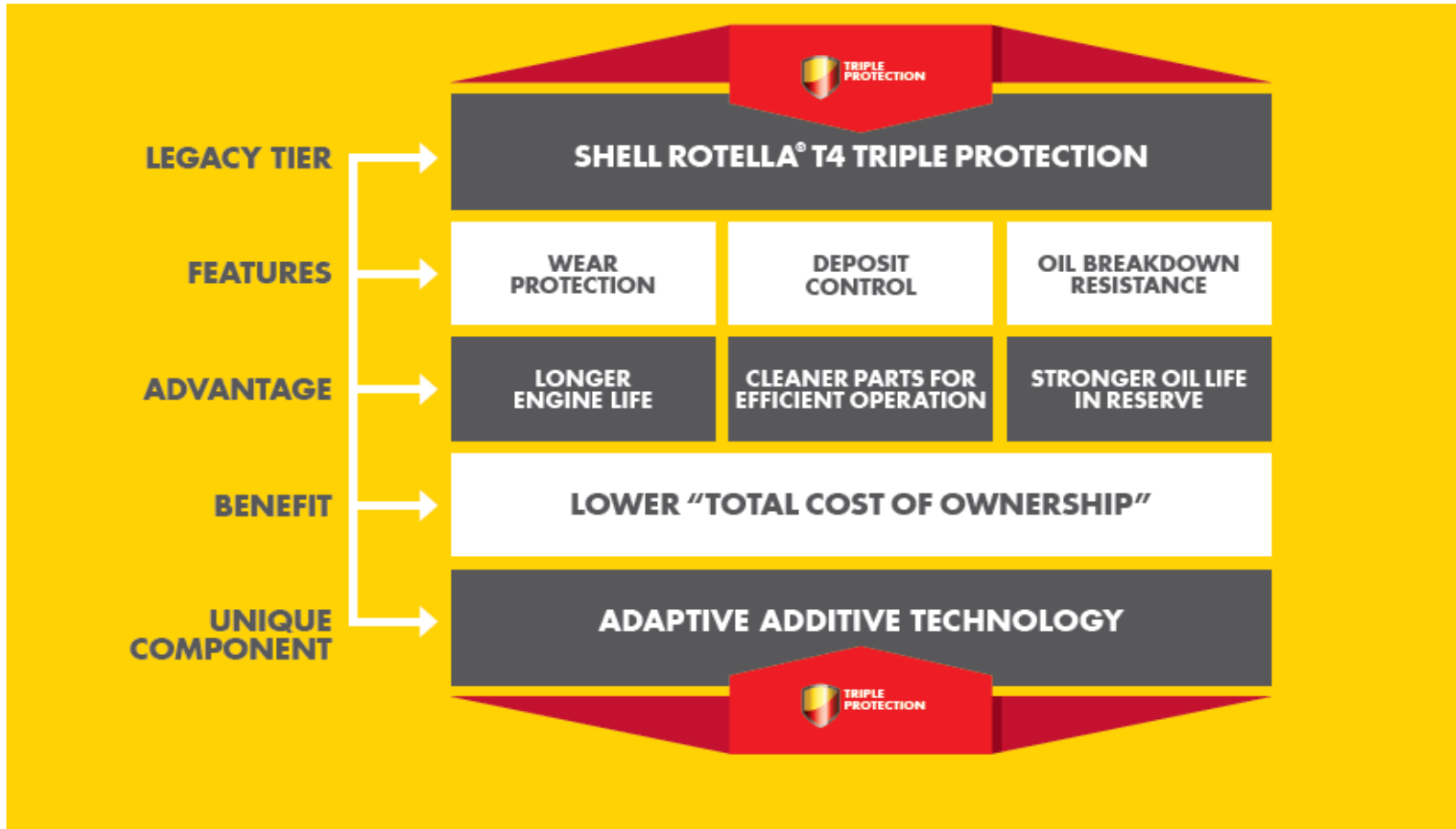


Shell ROTELLA® T4 Triple Protection® 10W-30

- Triple Protection® from wear, deposits and oil breakdown
- Meets API CK-4 performance standards and major OEM specifications
- Delivers strong engine protection as well as fuel economy savings over a conventional SAE 15W-40

	T4
API/OEM Specifications	10W-30
API CK-4	X
ACEA E9	X
Caterpillar ECF-2/ECF-3	X
Cummins CES 20086	X
Detroit Fluid Specification (DFS) 93K222	X
Ford WSS-M2C171-F1	X
JASO DH-2	X
MACK EOS-4.5	X
Volvo VDS-4.5	X

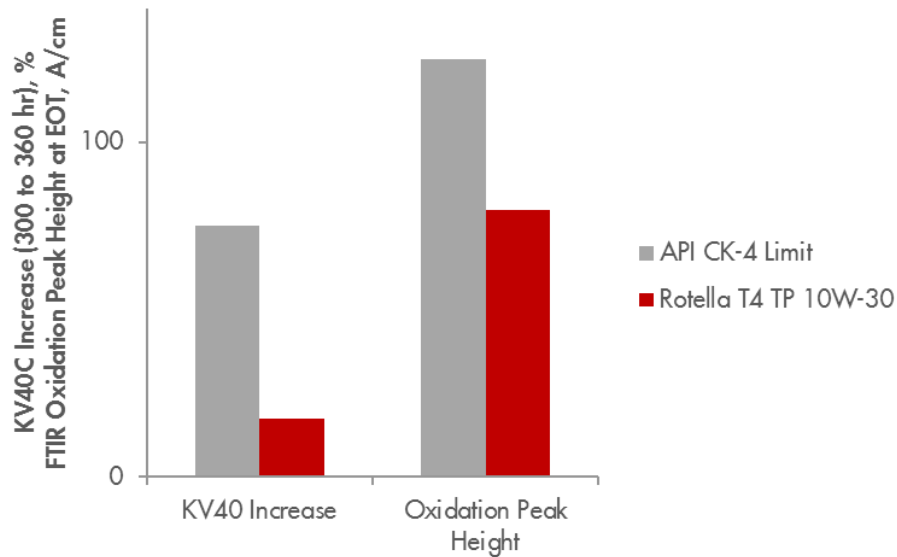
What is Triple Protection[®] Technology?



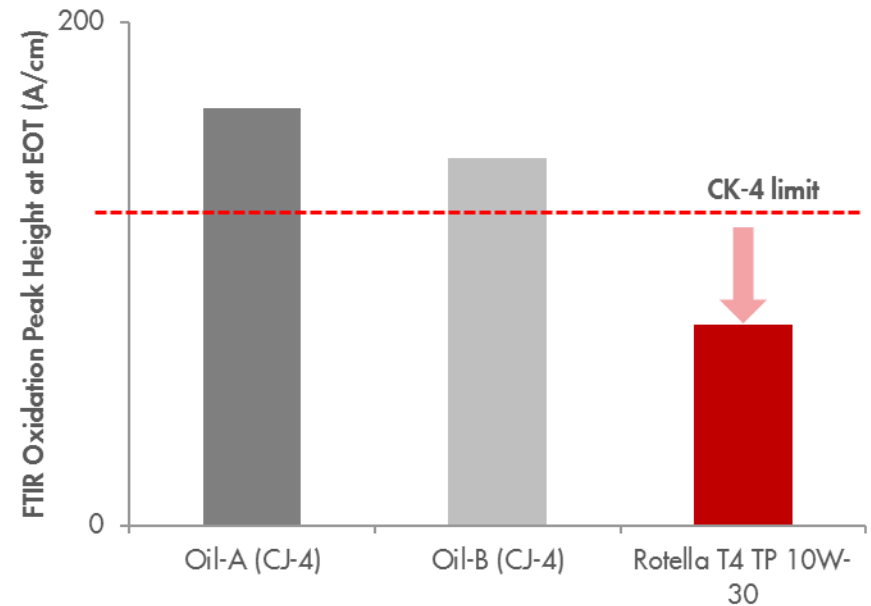
Oxidation Control

OXIDATION CONTROL

Volvo T-13 Test



Volvo T-13 Test

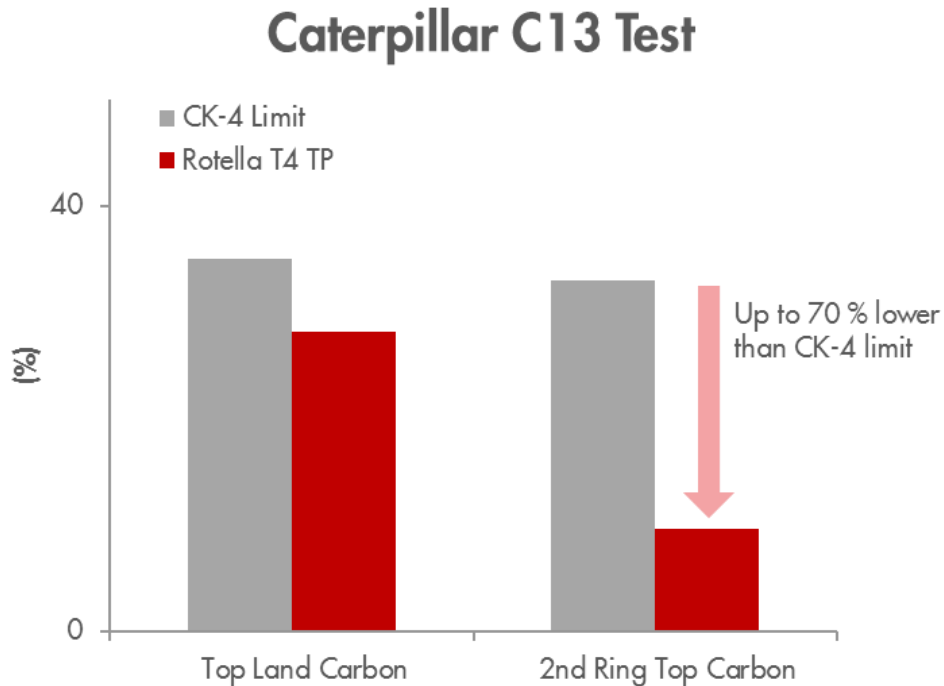


■ Excellent and improved oxidation control performance of new Rotella T4 Triple Protection 10W-30 CK-4 (vs CJ-4 oil) was demonstrated from the most severe oxidation engine testing in the industry, Volvo T-13 test.

***Note: Oxidation of Oil-A is at 300hr*

Deposit Protection

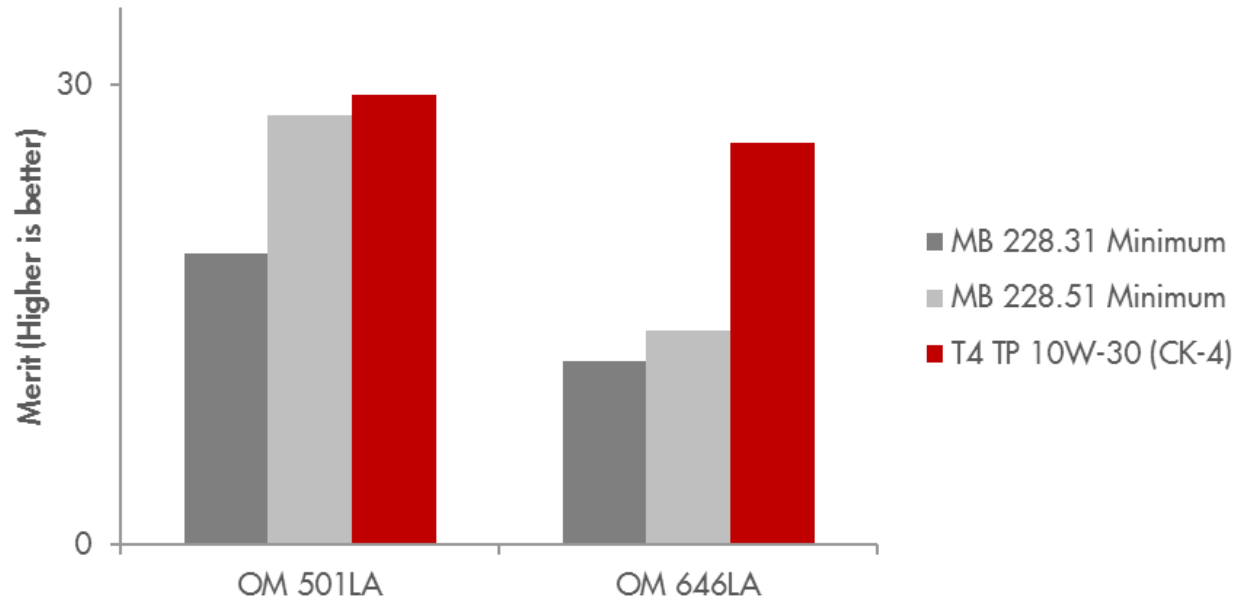
DEPOSIT PROTECTION



- From the Caterpillar C13 engine test, ROTELLA® T4 Triple Protection® showed up to 70% better deposit rating than the CK-4 limit.
- Caterpillar C13 test (ASTM D7549) evaluates the steel piston deposit formation of an engine oil in a turbocharged intercooled diesel engine.

DEPOSIT PROTECTION

Piston Cleanliness

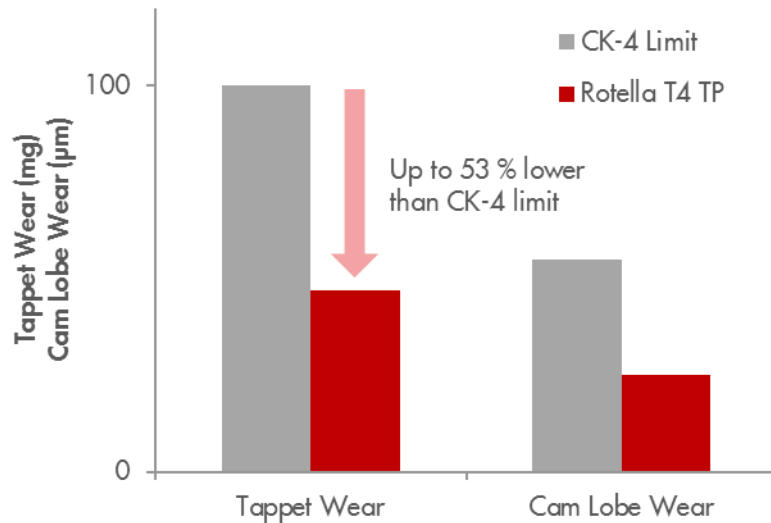


- Shell ROTELLA® T4 Triple Protection® 10W-30 (CK-4) provides exceptional piston cleanliness, exceeding the MB 228.51 requirements in the demanding OM 501LA and OM 646LA engine tests.

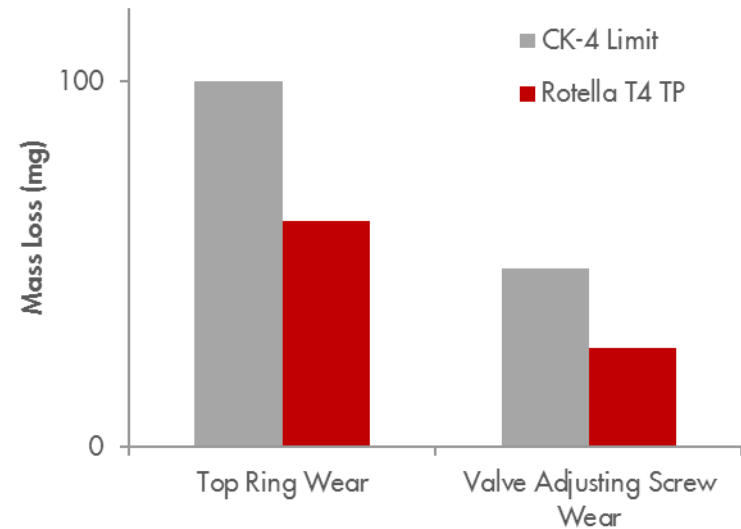
Wear Protection

WEAR PROTECTION

Cummins ISB Test



Cummins ISM Test



- Shell ROTELLA® T4 TP 10W-30 (CK-4) demonstrated an exceptional wear protection, particularly up to 53% lower tapper wear than CK-4 limit from Cummins ISB engine test (350 hour).
- Cummins ISB test (ASTM D7484) evaluates the valve train wear (sliding) performance of an engine oil in turbocharged/after-cooled diesel engines with accelerated soot production condition.

- In Cummins ISM test (200 hour), Shell ROTELLA® T4 TP 10W-30 (CK-4) proved its strong wear protection performance for both area of top ring and valve adjusting screw.
- Cummins ISM test (ASTM D7468) evaluates the valve train wear (abrasive and corrosive) and deposit control of an engine oil under heavy-duty operating conditions with high soot.

WEAR PROTECTION

- Shell ROTELLA® T4 TP 10W-30 (CK-4) showed average 37% lower wear than the limits from all CK-4 wear engine test parameters (ISB, ISM, T-12, RFWT).



Cross Heads from Cummins ISM Test

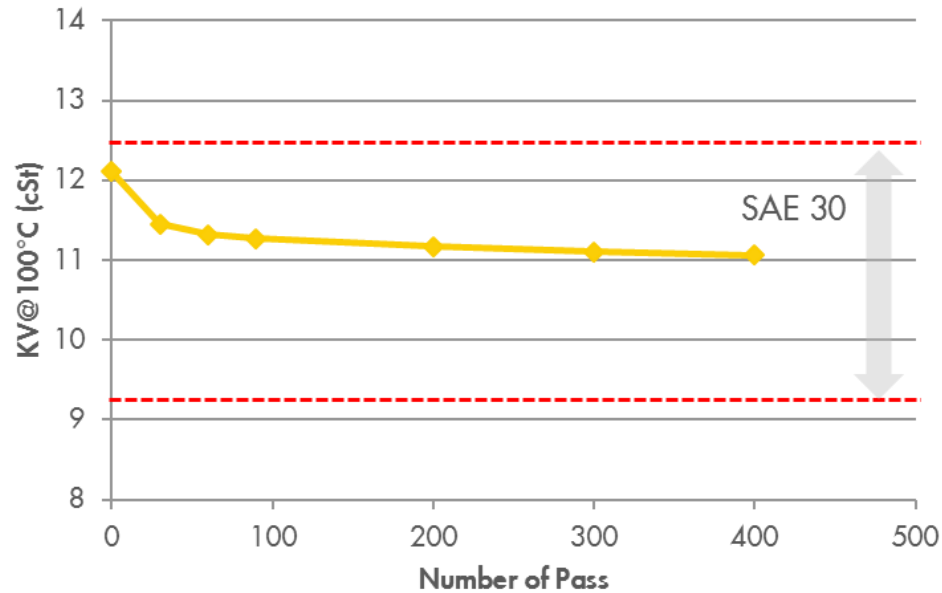


Cross Heads from Cummins ISB Test

Shear Stability

SHEAR STABILITY

KV100 after Shear



- Strong shear stability of ROTELLA® T4 Triple Protection® 10W-30 (CK-4) was demonstrated from the extended shear stability testing.
- KV100 of ROTELLA® T4 Triple Protection® 10W-30 was maintained in its viscosity grade even after 400 pass testing (ASTM D7109).

