

# SHELL RIMULA R4 L CK-4



■ **Low emissions<sup>1</sup>**

<sup>1</sup>Compatible with lower emissions engine technology



# YOU NEED TO KNOW THAT YOUR OIL WILL PROTECT YOUR ENGINE UNDER ALL CONDITIONS. NO MATTER HOW HOT, COLD, STEEP, DUSTY, MUDDY OR EXTENDED YOUR OPERATIONS, YOU DEMAND PROTECTION.

## PROTECTIVE POWER

Shell Rimula R4 L provides operators with one of the highest levels of protection achievable in a conventional viscosity grade engine oil. In addition, the low sulphated ash, phosphorus and sulphur formulation helps to protect the catalysts and diesel particulate filters.

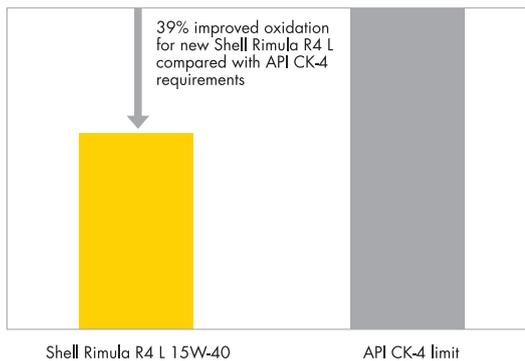
## MEETING THE LATEST API SPECIFICATION

Advanced technologies and materials, and new operating conditions such as higher internal temperatures continue to improve engine efficiency. These engine changes place more stress on the oil, which has to lubricate, cool, clean and protect over extended oil-drain intervals.

As engine manufacturers create cleaner, more-fuel-efficient diesel engines, they need a new generation of high-performing diesel engine oils to protect them. Shell Rimula R4 L has been formulated to meet the latest API CK-4 specification, which extends test limits in response to changes in engine hardware and operating conditions.

## OXIDATION CONTROL

Shell Rimula R4 L offers improved oxidation control, with up to 39% better performance in the rigorous Volvo T-13 test compared with the API CK-4 limit. Excellent oxidation control helps to prevent oil thickening and harmful deposits in all areas of the engine.

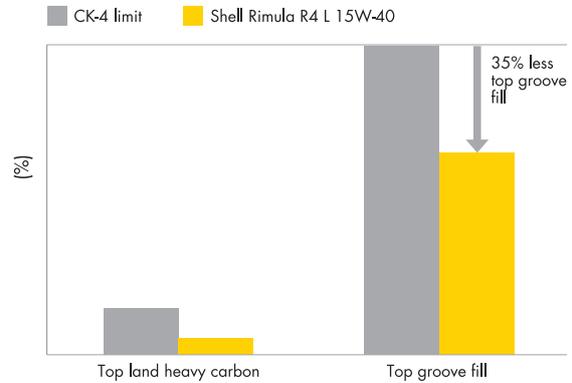


Oxidation performance in Volvo T-13 test

## IMPROVED PROTECTION

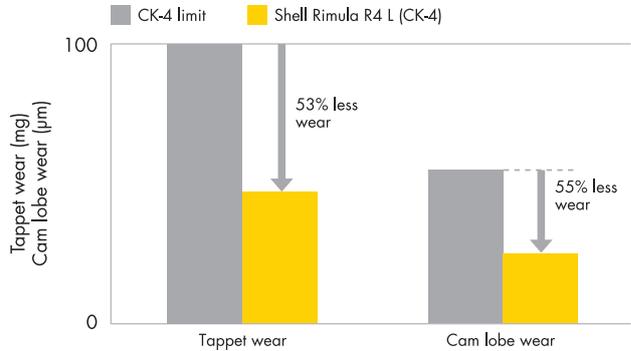
Shell Rimula R4 L provides considerably higher levels of wear and deposit control than previous-generation oils.

**Deposit protection:** In the Caterpillar 1N test, which evaluates the aluminium piston deposit formation and oil consumption of an engine oil in a direct-injection diesel engine, Shell Rimula R4 L 15W-40 (CK-4) shows strong resistance to carbon build-up.



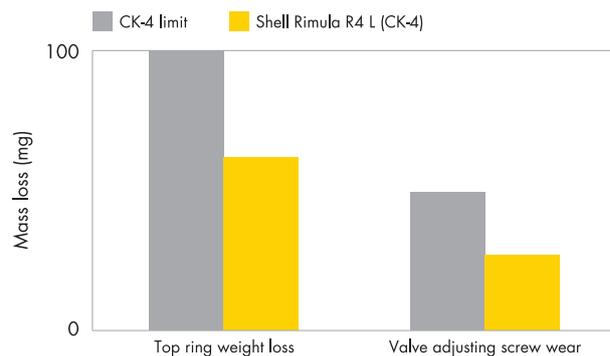
Caterpillar 1N test (ASTM D6750)

**Wear protection:** Shell Rimula R4 L offers exceptional wear protection. In the Cummins ISB engine test (350 h), which evaluates the valve train wear (sliding) performance of an engine oil in turbocharged/after-cooled diesel engines with accelerated soot production, Shell Rimula R4 L demonstrates up to 55% lower tappet wear than the API CK-4 limit.



Cummins ISB test (ASTM D7484)

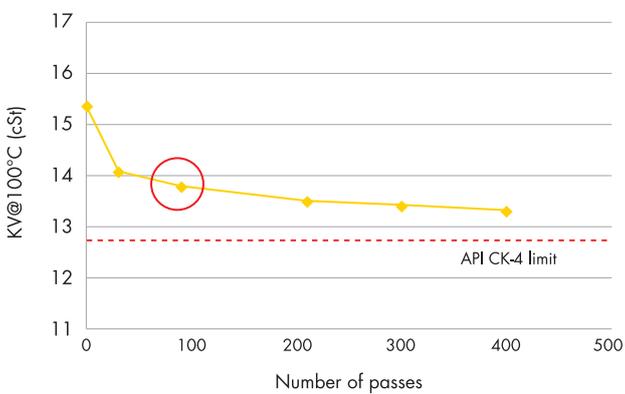
In the Cummins ISM test (200 h), which evaluates the valve train wear (abrasive and corrosive) and deposit control of an engine oil under heavy-duty operating conditions with high soot production, Shell Rimula R4 L demonstrates strong wear protection performance for the top ring and valve adjusting screw areas.



Cummins ISM test (ASTM D7468)

## SHEAR STABILITY

Shear stability is a measure of an oil's ability to resist mechanical degradation under severe stress. Shearing into smaller parts can reduce oil viscosity, which may result in failure to protect vital engine parts. In the ASTM D7109 test, Shell Rimula R4 L demonstrated strong shear stability with a kinematic viscosity higher than the API CK-4 limit.



ASTM D7109 shear stability test

## DYNAMIC PROTECTION

Shell Rimula R4 L heavy-duty diesel engine oil is formulated with Adaptive Additive Technology that adapts physically and chemically to engines to provide Dynamic Protection in three key engine performance areas. It

- fights acids from fuel combustion that can cause corrosion and wear
- helps to control deposits and dirt in all parts of the engine
- helps to control wear through maintaining strongly protective oil films to help keep critical engine components working.



RELATIVE PROTECTION			
	Acid/corrosion	Dirt and deposits	Wear
Shell Rimula R6 LM	✓✓✓	✓✓✓✓	✓✓✓✓
Shell Rimula R4 L	✓✓	✓✓✓	✓✓✓
Shell Rimula R3 X	✓✓	✓✓	✓✓

Performance is a relative indication only





## SPECIFICATIONS AND APPROVALS

### SAE viscosity grade: 15W-40

API: CK-4, CJ-4 and SM/SN; ACEA: E9; Allison: TES 439; Caterpillar: ECF-2 and ECF-3; Cummins: CES 20081 and 86; DEUTZ: DQC III-10 LA; DDC: 93K218 and 93K222; JASO: DH-2; MAN: M3575; MB approval 228.31; MTU: Category 2.1; and Volvo: VDS-4 and VDS-4.5

### SHELL RIMULA R4 L – SUITABLE FOR



For more information, please contact



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