

## CHALLENGING OIL SCENARIOS AND SOLUTIONS COMPARING API CK-4 AND API CJ-4 OILS

As new engine technology is developed, so too must the oil we use to protect these new, high specification vehicles. TOTAL Rubia oils have undergone strenuous testing to meet or exceed industry standards for the various oil degradation scenarios listed here and provide positive solutions to these challenges.

### RUBIA OPTIMA 1100

#### Oxidation Stability

**Scenario** Oxidation degrades oil, causing harmful sludge and viscosity increase.

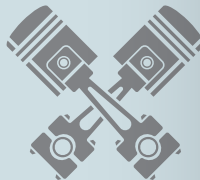
**Rubia Solution** Stabilized oxidation means better protection for newer engines, which operate at higher temperatures.



#### Shear Stability

**Scenario** Under severe stress, shearing within the oil occurs which causes viscosity decrease, leading to engine wear.

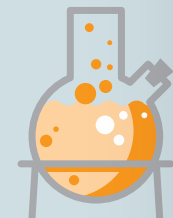
**Rubia Solution** Increased resistance to shearing provides better protection for newer engines ensuring loss of oil pressure is diminished.



#### Aeration Control

**Scenario** Bubbles affect the ability of an oil to effectively cool and protect.

**Rubia Solution** Reduced bubbles mean better engine efficiency and protection.



## FAQS

### 1) What is API CK-4?

**API CK-4** is the new generation of heavy-duty engine oils since December 2016. CK-4 oils replace CJ-4 oils with the same viscosity grades and oil types and are backward compatible down to CH-4 (in some cases up to CF-4)

### 2) What does the introduction of a new service category mean for our customers?

The international regulatory authorities have set more stringent greenhouse gas emission limits. Engine manufacturers are now being obliged to make cleaner diesel engines without any compromise on performance. This means oil manufacturers are required to produce new oils for these engines.

### 3) Will the launch of Rubia Optima 1100 15W-40 increase the oil drain intervals?

Due to improved oxidation resistance, reduced corrosion and sludge deposits, the oil is expected to give much higher drain intervals. Since this product is new, and because drain intervals depends on several factors, the drain interval for this region will have to be established based on trials with existing customers.

### 4) Can Rubia Optima 1100 15W-40 be used in the current vehicles and Off-Road equipment where CI-4/CH-4 products are being used?

Yes, Rubia Optima 1100 15W-40 can be used for engines where 15W-40 oils were used and recommended by manufacturers. It can be used for both on-road vehicles on and off-road equipment.

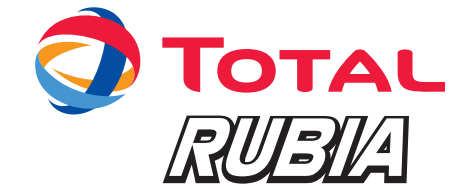
### 5) Can Rubia Optima 1100 15W-40 be vehicles of other makes not homologated in the data-sheet?

The product is still being tested by several OEMs and approvals will be updated in due course. Where warranty claims are involved, we do not advise to use this oil where manufacturers ask for specific approvals not listed in the data sheets.

### 6) What is the shelf life of Rubia Optima 1100 15W-40?

The shelf life of this oil is typically 3 years from the date of manufacturing, when stored properly under the shade without the exposure to sunlight, water and dust.

For any further information, please contact your Total Representative



## RUBIA OPTIMA 15W-40 OPTIMIZING PERFORMANCE FOR LATEST GENERATION OF DIESEL ENGINES



# RUBIA OPTIMA 1100

Total's Heavy Duty Diesel Engine Oil Range has now been improved with the addition of Rubia Optima 1100 15W-40. This product meets the latest **API CK-4** specification and is developed for the latest generation of diesel engines.

Total Rubia Optima 1100 15W-40 is also suitable for older engines and is backward compatible with API CJ-4, CI-4 PLUS, CI-4 and CH-4.

## SPECIFICATIONS

### INTERNATIONAL STANDARDS

- API CK-4/CJ-4/CI-4 PLUS/CI-4/CH-4/SN
- ACEA E9/E7

### OEM APPROVALS

VOLVO VDS 4.5, CUMMINS CES 20086, RENAULT TRUCKS RLD-4, MACK EO-S 4.5, DETROIT DIESEL DFS 93K222, FORD WSS-M2C171-F1\*

\*Awaiting official approval from Ford



## WHY ARE THERE NEW API CK-4 LUBRICANTS?

With a global go-green initiative, TOTAL Rubia is happy to comply with new API standards



Engine manufacturers are obliged to make cleaner and more fuel-efficient diesel engines.



Regulators set more stringent greenhouse gas emissions limits.



Oil makers are required to produce new oils for these new engines.

## RANGE POSITIONING

Rubia Optima 1100 15W-40 is a top-tier product in the Rubia Range, having the highest API specification.

	API	ACEA	VOLVO	RENAULT	CUMMINS	MACK	DETROIT DIESEL	FORD
Rubia Optima 1100 15W-40	CK-4	E9/E7	VDS 4.5	RLD-4	CES 20086	EO-S 4.5	DFS 93K222	WSS-M2C171-F1
Rubia TIR 9900 10W-40	CJ-4	E4/E6/E7/E9	VDS-4	RLD-3	CES 20081	EO-0 Premium Plus	-	-
Rubia TIR 8800 10W-40	CI-4	E4	VDS-3	RLD-2	-	EO-N	-	-
Rubia Works 1000 15W-40	CI-4	E7	VDS-3	RLD-2	CES 20078	EO-N	-	-
15W-40	CI-4	E7	VDS-3	RLD-2	20078	EO-N	-	-

## WHAT DOES IT MEAN FOR YOUR BUSINESS?

• **Increased durability** – Downtime is the bane of any fleet operator as it reduces the capacity of their business. Rubia Optima oils will have potentially longer oil drain intervals and greater engine protection.



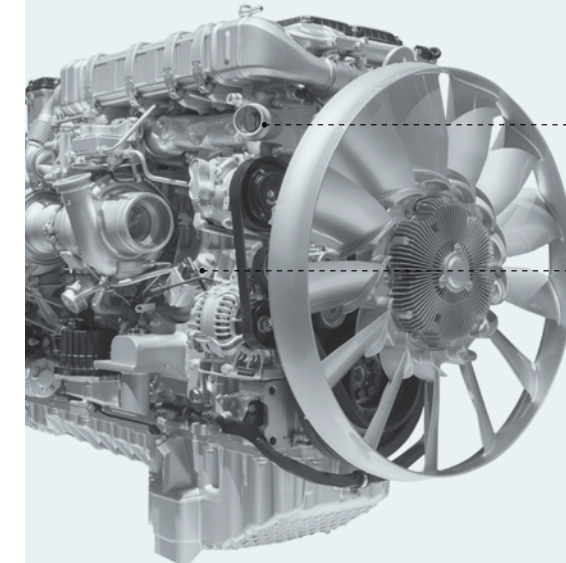
• **Designed for all environments** – Rubia Optima oils will provide optimum efficiency in the harshest environments and most extreme temperatures.



• **Economical benefits** – Apart from decreased fuel consumption, clients should also experience less maintenance and downtime due to the reduced corrosion and sludge deposits.



## APPLICATIONS



Particularly recommended for the latest EURO V and EURO VI engines equipped with after-treatment systems.

However, Rubia Optima 1100 15W-40 can also be used in all applications where API CJ-4, CI-4 plus, CI-4 or CH-4 products were recommended and where the OEM requires viscosity of SAE 15W-40. Therefore for these applications, it can be a direct replacement.