



TOTAL
LUBRICANTS

PC-11 » CK-4 & FA-4
NEW RUBIA OILS TO
TAKE YOU FURTHER
EVERY DAY.



NEW RUBIA OILS FOR EVEN BETTER PERFORMANCE

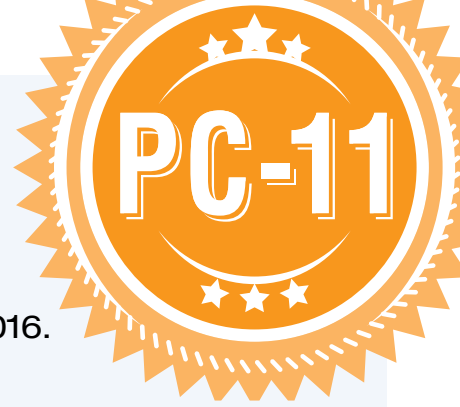
With the recent PC-11 specification updates, TOTAL Rubia is proud to undertake a new and improved product range. Our new API CK-4 and FA-4 oils are the future generation of heavy-duty engine oils.

www.totaloil.com.au

Energizing performance. Every day



PC-11 THE NEW STANDARD FOR HEAVY DUTY ENGINE OILS



PC-11 stands for Proposed Category 11, a new category of Heavy Duty Engine Oils, due to be released in December 2016. PC-11 oils will surpass current API CJ-4 oil technology.

As one might expect, the change to PC-11 is pushing heavy-duty engine oils to a higher standard.

TOTAL Rubia is proud to continue its advanced formulating approach in developing new and innovative products.

TWO NEW TYPES OF PC-11 OILS

API CK-4 oils will be a direct replacement for the oils you are using now. You will be able to buy the same viscosity grades and oil types (conventional, full synthetic, synthetic blend) you are using now, and they will be backwards compatible down to API CJ-4.



API CK-4
DIRECT REPLACEMENT
FOR YOUR CURRENT OIL

API FA-4 oils will be offered in lower viscosity grades and designed to help maximize fuel economy with no compromise in durability. These API FA-4 oils will have limited backwards compatibility.

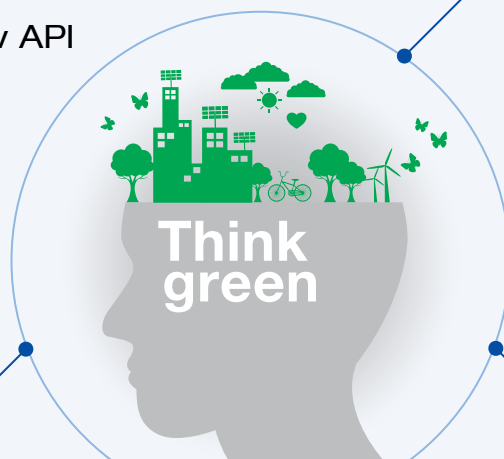


API FA-4
LIMITED COMPATIBILITY,
CHECK MANUAL FOR
RECOMMENDED OIL.

WHY ARE THERE NEW API CK-4 AND FA-4 LUBRICANTS?

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

Regulators set more stringent greenhouse gas emissions limits.

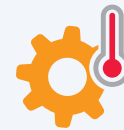


Engine manufacturers are obliged to make cleaner and more fuel efficient diesel engines.

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

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 PC-11 oils will have potentially longer oil drain intervals and greater engine protection.
- Cutting emissions – Using Rubia FA-4 oils will improve fuel economy while also lowering carbon dioxide (CO₂) emissions.
- Designed for all environments – Rubia PC-11 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.



WHY IS TOTAL RUBIA THE PREFERRED PC-11 PARTNER?

- Close R&D cooperation with OEMs in various tests and field trials to develop OEM-endorsed oils that protect the engines throughout the oil drain interval
- Quick response and direct support from TOTAL local affiliates in over 100 countries worldwide
- TOTAL ANAC oil analysis service as a value-added tool for clients' fleet maintenance
 - Helps clients to avoid premature wear and possible failure
 - Extends service life of engine parts
 - Saves on overall operational costs
- TOTAL has over 20 years of experience in developing Fuel Economy products and offers to clients a wide range of Fuel Economy solutions for each application (engines, gearboxes and axles)



- NEW state-of-the-art “T.I.R Technology” to emphasize our key benefits of protection, approvals and reduced costs for clients



- **Total Protection:** RUBIA protects engines against wear, corrosion and deposits. Industry tested, RUBIA products are put through numerous tests and to achieve results that show excellent performance in oxidation stability, and against wear, deposits and soot.
- **International Approvals:** RUBIA has greater number of approvals and more advanced approvals than most other products in the market. This means multi-brand fleets require fewer products to meet crucial requirements of the most advanced engines in the market.
- **Reduced Costs:** RUBIA offers better fleet cost savings with a full suite of TOTAL FUEL ECONOMY engine and transmission oils and a leading condition monitoring service with TOTAL ANAC.



CHALLENGING OIL SCENARIOS AND SOLUTIONS COMPARING PC-11 AND API CJ-4 OILS

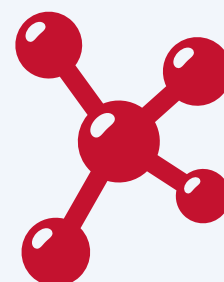


As new engine technology is developed, so too must the oil we use to protect these new, high specification vehicles. TOTAL Rubia PC-11 oils have undergone strenuous testing to meet or exceed industry standards for the various oil degradation scenarios listed here and provide positive solutions to these challenges.

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.



Fuel Economy

Scenario Engine protection has traditionally been based on oil viscosity.

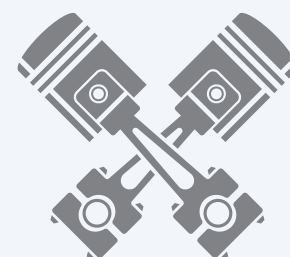
Rubia Solution Increased fuel economy is achieved on lower viscosity oil without sacrificing engine protection.



Shear Stability

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

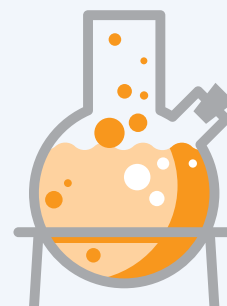
Rubia Solution Increased resistance to shearing provides better protection for newer engines ensuring loss of oil pressure is diminished.



Aeration Control

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

Rubia Solution Reduced bubbles mean better engine efficiency and protection.



FAQS

Why are FA-4 oils not backwards compatible down to CJ-4?

FA-4 oils are designed at lower viscosity grades for next-generation diesel engines to help maximize fuel economy without sacrificing engine protection. These oils have limited backwards compatibility because some older engines were not designed to operate with lower viscosity grades.

Will the launch of CK-4 & FA-4 change oil drain intervals?

It is possible, but what we understand at the moment is certain OEMs may extend oil drain intervals in CK-4 due to improved oxidation resistance.

Will CK-4 and FA-4 oils be mineral, semi-synthetic or synthetic?

There is no API requirement on the type of base oil. CK-4 oils will be mineral, semi-synthetic or fully synthetic, depending on the oil specification required. FA-4 oils could possibly be of some synthetic content to meet FA-4 level of performance.

Can I use CK-4 & FA-4 oils in my current or older vehicles?

Yes for CK-4 at the same viscosity grades. For FA-4, they are in new lower viscosity grades and thus limited in backward compatibility, so please check with your vehicle manufacturer for their recommendation.

Does lower viscosity mean less protection?

No. The protective properties of the oil are not reduced by moving to a lower viscosity oil. In any case, always follow OEMs recommendations.

How are FA-4 oils different from TOTAL Fuel Economy (FE) oils?

FA-4 oils (at 2.9 cP – 3.2 cP) have a lower High Temperature High Shear (HTHS) viscosity than TOTAL FE oils (at 3.5 cP or above). Reducing HTHS from 3.5 to 3.0 cP would bring an extra 0.5% fuel economy according to the consensus reached by most OEMs.

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Energizing performance. Every day

