

**RUBIA**  
ENGINE OIL

**200+**  
APPROVALS

FROM  
HEAVY-DUTY VEHICLE  
& EQUIPMENT  
MANUFACTURERS\*\*

\*For Rubia range in its entirety



**TotalEnergies**

# Rubia Works

Tailor-Made Engine Oils  
for Construction &  
Mining Equipment

## About TotalEnergies' Lubricants business

TotalEnergies is a leading global manufacturer and marketer of lubricants, with 42 production sites around the world and more than 5,800 employees in 160 countries. TotalEnergies' lubricants business offers innovative, high-performance and environmentally friendly products and services, developed by its R&D centers, which employ over 130 researchers. TotalEnergies' lubricants business is a key partner for players in the automotive, industrial and marine markets.

## About the Marketing & Services division of TotalEnergies

TotalEnergies' Marketing & Services business segment offers its professional and private customers a wide range of broad energy products and services—petroleum products, biofuels, charging and related services for electric vehicles, gas for road and maritime transportation—to support them in their mobility and help them reduce their carbon footprint. Every day, over 8 million customers visit our 16,000 service-stations all over the world. As the world's fourth largest manufacturer of lubricants, we design and sell high-performance products for the automotive, industrial and maritime sectors. To provide the best response to the needs of our B2B customers, we deploy our sales forces, our international logistics network and our diverse offerings. We operate in 107 countries, where our 31,000 employees stand close to all of our customers.

## About TotalEnergies

TotalEnergies is a broad energy company that produces and markets energies on a global scale: oil and biofuels, natural gas and green gases, renewables and electricity. Our 105,000 employees are committed to energy that is ever more affordable, clean, reliable and accessible to as many people as possible. Active in more than 130 countries, TotalEnergies puts sustainable development in all its dimensions at the heart of its projects and operations to contribute to the well-being of people.



**Rubia Works range is tested and approved by over 200 major On- and Off-Road Heavy Vehicle & Equipment Manufacturers (Original Equipment Manufacturers -OEMs-)**

These product approvals certify that Rubia Works is 100% compatible with the latest engine technology of the related manufacturers.

**Premium products and tailor-made solutions to increase your operational efficiency.**

TotalEnergies increases uptime and lowers maintenance costs thanks to its:

- Rubia Works, designed from years of research, tested in real world conditions during field tests and approved by OEMs.
- Anac OFF-ROAD preventive maintenance tool and Fleet Management System, based on used oil analysis and supported by its technical teams on the field.

TotalEnergies develops tailor-made lubricants in its state-of-the-art R&D centers in France and India. Products are developed in close collaboration with Off-Road Heavy Vehicle & Equipment Manufacturers in order to meet their sophisticated and most demanding technical requirements.



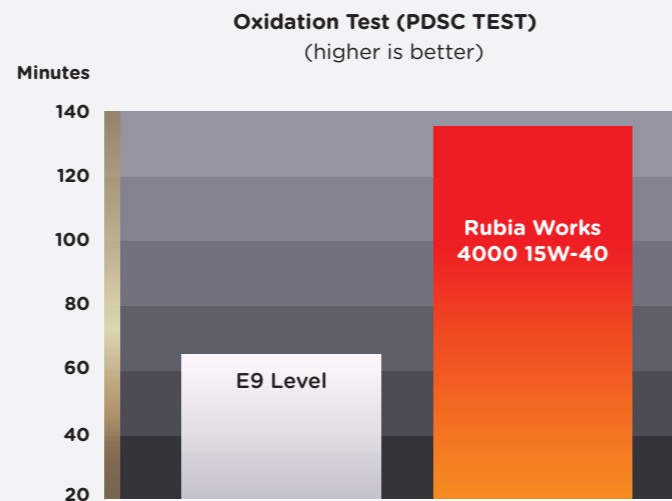
# Rubia Works 4000

Rubia Works 4000 products are formulated with the most recent chemistry to be used in the newest high-performance diesel engines of off-highway machinery.

- Certified in accordance with Japanese, European and American criteria. Recommended for all Diesel engines up to the most recent compliance with the emission standards of US EPA Tier 4 Final, EU Stage IV and Stage V.
- Especially designed for engines operating under the most extreme conditions (full load, long work cycles, dusty and hot atmosphere).

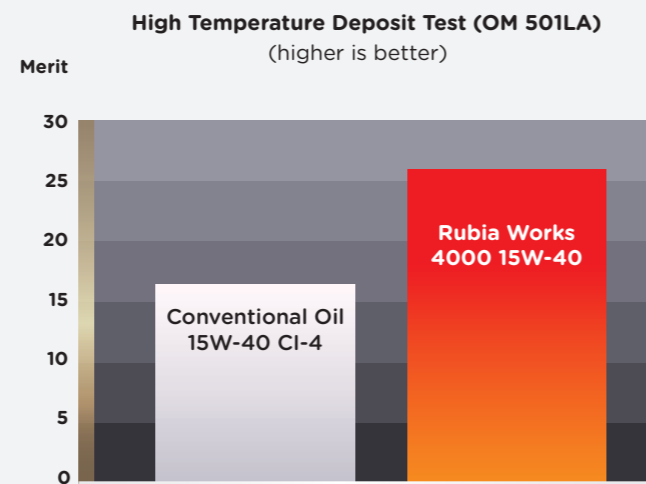
## OXIDATION CONTROL

The detergent properties of Rubia Works 4000 15W-40 prevents piston deposits. It exceeds more than 2 times the ACEA E9 requirement.



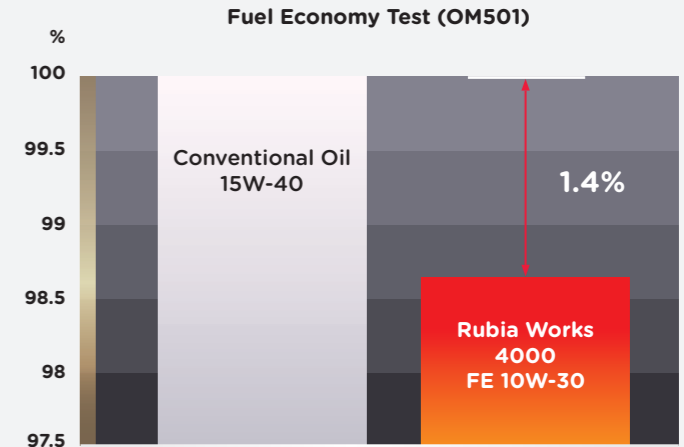
## FLAWLESS PISTON CLEANLINESS

Helps engines run more smoothly at high temperatures by keeping engines up to 70% cleaner than most oils in the market.



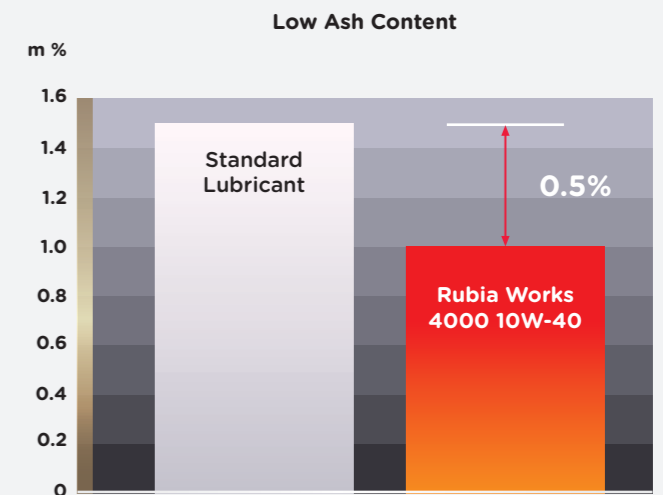
## FUEL ECONOMY

According to the result of the Fuel economy test, Rubia Works 4000 FE 10W-30 can result to a fuel savings of 1.41%. For example, a wheeled loader which consumes 30 liters per hour over a period of 2000 hours can approximately save 840 liters per year.



## LOW ASH CONTENT

High ash content results in the diesel particulate filter (DPF) getting clogged up very quickly. This is why Rubia Works 4000 10W-40 has lower Sulfated Ash, Phosphorus and Sulfur (SAPS) content.



Product Commercial Name	Fuel Economy	Low SAPS	International Standards	Manufacturers' Approvals	Meets the requirements of	Recommended in Machinery engines
Rubia Works 4000 FE 10W-30			<ul style="list-style-type: none"> <li>• ACEA E7, E9</li> <li>• API CK-4 / CJ-4 / CI-4 plus / CI-4 / SN</li> <li>• JASO DH-2 (D033TOL619)</li> </ul>	<ul style="list-style-type: none"> <li>• DEUTZ DQC III-18 LA</li> <li>• VOLVO VDS-4.5</li> <li>• MTU Category 2.1</li> <li>• RENAULT TRUCKS RLD-3</li> <li>• MACK EO-S 4.5</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-3 / ECF-2 / ECF-1-a</li> </ul>	<ul style="list-style-type: none"> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• JCB, etc.</li> </ul>
Rubia Works 4000 10W-40	—		<ul style="list-style-type: none"> <li>• ACEA E7, E9</li> <li>• API CK-4 / CJ-4 / CI-4 plus / CI-4 / SN</li> <li>• JASO DH-2 (D033TOL620)</li> </ul>	<ul style="list-style-type: none"> <li>• MB-Approval 228.31</li> <li>• CUMMINS CES 20086</li> <li>• MAN M 3775</li> <li>• DETROIT DIESEL DFS 93K222</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-3 / ECF-2</li> </ul>	<ul style="list-style-type: none"> <li>• IVECO FPT TLS E9</li> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• JCB, etc.</li> </ul>
Rubia Works 4000 15W-40	—		<ul style="list-style-type: none"> <li>• ACEA E7, E9</li> <li>• API CK-4 / CJ-4 / CI-4 plus / CI-4 / SN</li> <li>• JASO DH-2 (D033TOL621)</li> </ul>	—	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-3 / ECF-2</li> </ul>	<ul style="list-style-type: none"> <li>• IVECO FPT TLS OFV</li> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• JCB, etc.</li> </ul>



# Rubia Works 3000

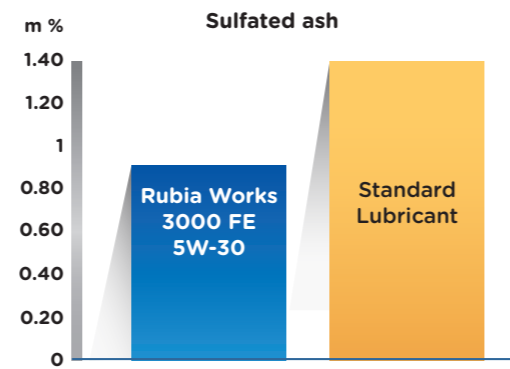
A high-performance diesel engine oil which is designed for the most recent engines of construction and mining machinery, operating in extreme conditions.

- Especially developed for the engines, that work under severe conditions and high load, required to operate for long periods of time at full capacity or with repeated acceleration and idling cycles.
- Designed for the latest Diesel engines equipped with post-treatment systems, such as Diesel particulate filters (DPF).
- Especially suitable for German engines that meet European standard Stage IV and American standard EPA Tier 4 final, requiring ACEA E6 or API CJ-4 lubricant.

## LOW ASH CONTENT



High ash content results in the diesel particulate filter (DPF) getting clogged up very quickly. This is why Rubia Works 3000 FE 5W-30 has lower Sulfated Ash, Phosphorus and Sulfur content.



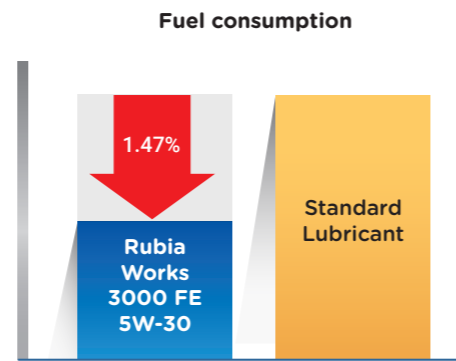
## FUEL ECONOMY



According to tests carried out by an independent European technical centre, Rubia Works 3000 FE 5W-30 can result in fuel savings of 1.47%\*\* compared with a standard SAE 15W-40 lubricant.

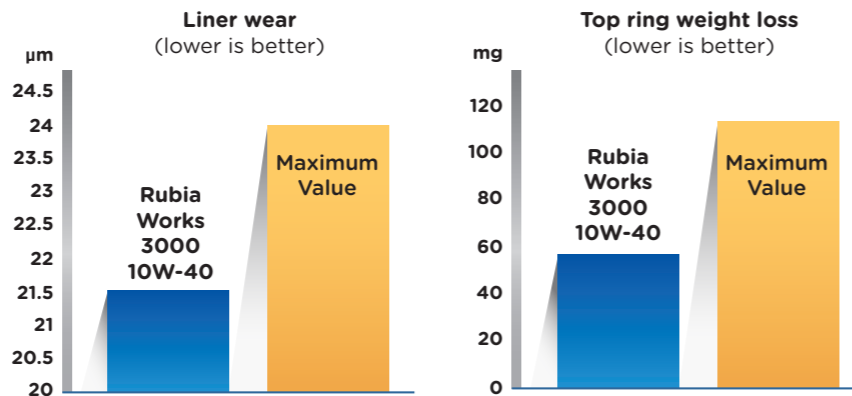
\*\* which accounts for 90% of usage

For example, a loader which uses 30 L/ hour over a period of 1000 hours can save 440 L/year or more.



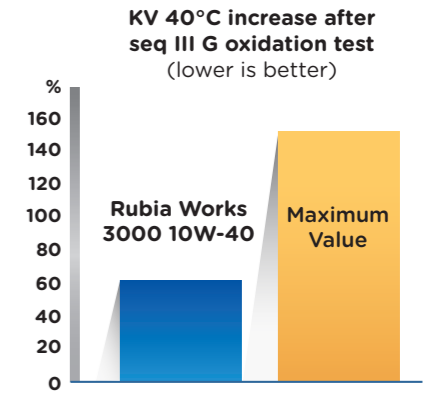
## ANTI-WEAR PROPERTIES

Rubia Works 3000 10W-40 shows excellent anti-wear performance in turbocharged intercooled diesel engine equipped with exhaust gas recirculation (EGR) by perfectly passing the soot-induced engine wear test Mack T-12.



## OXIDATION STABILITY

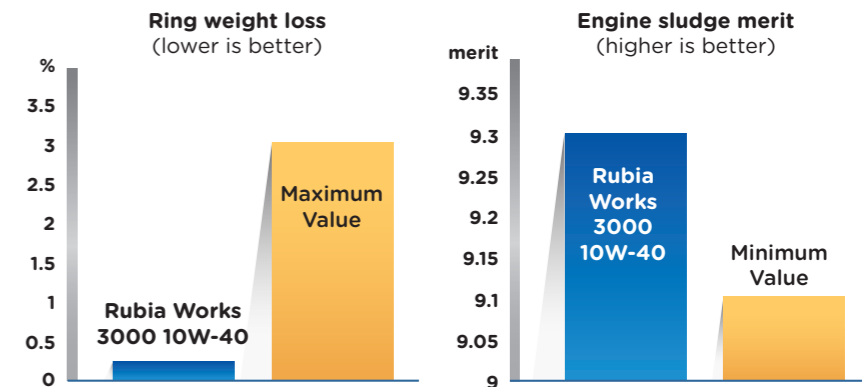
The Japanese JASO DH-2 standard is only awarded to engine oils which offer the best wear prevention and less oxidation sensitivity. Rubia Works 3000 10W-40 obtained excellent oxidation results, showing only 68% of kinematic viscosity at 40°C increase, compared to the maximum limit of 150% according to the III G oxidation test.



## PISTON CLEANLINESS

MB-Approval 228.51

Rubia Works 3000 10W-40 perfectly passes the stringent Mercedes-Benz wear and piston cleanliness test OM 646 DE 22 LA, which shows excellent protection against bore polishing and sludge deposits. The product performance by far exceeds ACEA, MAN and MB limits.



Product Commercial Name	Fuel Economy	Low SAPS	International Standards	Manufacturers' Approvals	Meets the requirements	Recommended in Machinery engines
Rubia Works 3000 FE 5W-30			<ul style="list-style-type: none"> <li>• ACEA E4, E6, E7, E9</li> <li>• API CJ-4 / CI-4 plus / CI-4 / CH-4</li> <li>• JASO DH-2 (D033TOL607)</li> </ul>	<ul style="list-style-type: none"> <li>• DEUTZ DQC IV-10 LA</li> <li>• MTU Category 3.1</li> <li>• MAN M 3477 / M 3677</li> <li>• MB-Approval 228.51</li> <li>• VOLVO VDS-4</li> <li>• MACK EO-O Premium Plus</li> <li>• RENAULT TRUCKS RLD-3</li> <li>• SCANIA LDF-4</li> <li>• DEUTZ TTCD 6.1</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-3 / ECF-2 / ECF-1-a</li> <li>• LIEBHERR LH 01 ENG LA</li> <li>• CUMMINS CES 20081</li> <li>• DAF</li> </ul>	<ul style="list-style-type: none"> <li>• IVECO FPT TLS E6</li> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• PERKINS, etc.</li> </ul>
Rubia Works 3000 10W-40	—		<ul style="list-style-type: none"> <li>• ACEA E6, E7, E9</li> <li>• API CJ-4 / CI-4 plus / CI-4 / CH-4</li> <li>• JASO DH-2 (D033TOL611)</li> </ul>	<ul style="list-style-type: none"> <li>• DEUTZ DQC IV-10 LA</li> <li>• RENAULT TRUCKS RLD-3</li> <li>• MTU Category 3.1</li> <li>• MAN M 3477</li> <li>• MACK EO-Premium Plus</li> <li>• MB-Approval 228.51</li> <li>• VOLVO VDS-4</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-3 / ECF-2 / ECF-1-a</li> <li>• LIEBHERR LH 01 ENG LA</li> <li>• CUMMINS CES 20081</li> </ul>	<ul style="list-style-type: none"> <li>• VECO FPT TLS E9</li> <li>• BELL</li> <li>• WIRTGEN</li> <li>• VOGELE, etc.</li> </ul>



# Rubia Works 1000

A multigrade engine lubricant for Earthmoving operations

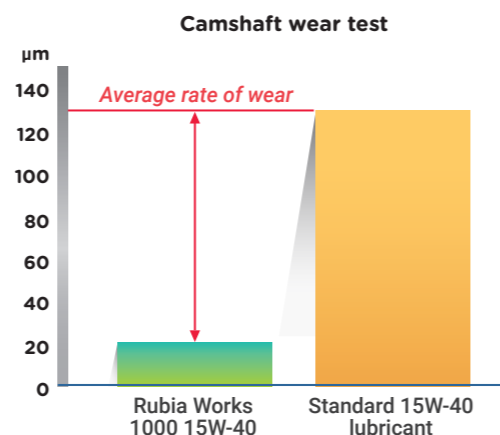
Rubia Works 1000 meets the most stringent standards.

- Compatible with all vehicle brands: the lubricant is certified in accordance with Japanese, European and American criteria.
- Recommended for all Diesel engines up to the most recent compliance with the depollution standards of EURO Phase IIIa and the US EPA TIER 3.
- Especially designed for engines operating under the most extreme conditions (full load, long periods, dusty and hot atmosphere, stop & go driving).

## Optimum engine protection even under the most extreme conditions

The anti-wear performance of Rubia Works 1000 provides optimum protection for the engine components.

Measurement of camshaft wear, the perfect indicator for these properties, have demonstrated the protective capabilities of this lubricant.

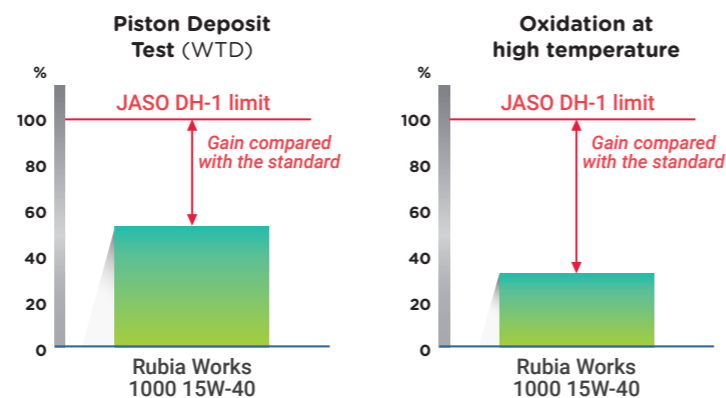


## Maximum oil change intervals

The formation of soot in the engine contaminates the lubricant and reduces its efficiency. Rubia Works 1000 has undergone tests in order to meet the ACEA E7 standard. This lubricant enables the maximum oil change intervals authorised by the constructors to be attained.

## Detergency Piston cleanliness

As demonstrated by tests carried out to obtain JASO approval, Rubia Works 1000 15W-40 prevents piston deposits.

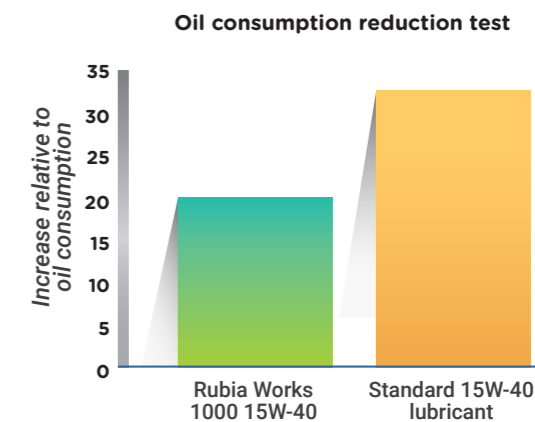


## Superior oxidation stability

Rubia Works 1000 15W-40 successfully passed Komatsu Hot Tube test, which tests the oil's ability to resist oxidation and deposit formation - critical factor given by Japanese engine manufacturers for construction & mining OEM's allowing 500 hours drain interval or more with the help of Anac Off-Road (Oil Analysis Service).

## Reduce oil consumption

Tests carried out on the CATERPILLAR C13 engine have shown that when Rubia Works 1000 15W-40 is used, nearly 50% less oil is required compared with the benchmark lubricant - evidence of its perfect piston ring sealing and maximum engine efficiency.



Product Commercial Name	Fuel Economy	Low SAPS	International Standards	Manufacturers' Approvals	Meets the requirements	Recommended in Machinery engines
Rubia Works 1000 FE 10W-30		—	<ul style="list-style-type: none"> <li>• ACEA E5, E7</li> <li>• API CI-4 / CH-4 / SL</li> <li>• JASO DH-1 (D033TOL615)</li> </ul>	<ul style="list-style-type: none"> <li>• CUMMINS CES 20078 / 20077 / 20076</li> <li>• RENAULT TRUCKS RLD-2</li> <li>• DEUTZ DQC III-10</li> <li>• MACK EO-N</li> <li>• MTU Category 2</li> <li>• DETROIT DIESEL DFS 93K215</li> <li>• MB-Approval 228.3</li> <li>• VOLVO TRUCKS VDS -3</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-2, ECF-1-a</li> <li>• MAN M 3275-1</li> </ul>	<ul style="list-style-type: none"> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• SCANIA</li> <li>• MITSUBISHI</li> <li>• DEERE</li> <li>• PERKINS</li> <li>• CASE</li> <li>• NEW-HOLLAND</li> <li>• LIEBHERR</li> <li>• JCB, etc.</li> </ul>
Rubia Works 1000 15W-40	—	—	<ul style="list-style-type: none"> <li>• ACEA E5, E7</li> <li>• API CI-4 / CH-4 / SL</li> <li>• JASO DH-1 (D033TOL618)</li> </ul>	<ul style="list-style-type: none"> <li>• CUMMINS CES 20078 / 20077 / 20076</li> <li>• RENAULT TRUCKS RLD-2</li> <li>• DEUTZ DQC III-10</li> <li>• MACK EO-N</li> <li>• MTU Category 2</li> <li>• DETROIT DIESEL DFS 93K215</li> <li>• MB-Approval 228.3</li> <li>• VOLVO TRUCKS VDS -3</li> <li>• ISUZU Orop List 2015</li> <li>• ALLISON TES 439</li> </ul>	<ul style="list-style-type: none"> <li>• CATERPILLAR ECF-2 / ECF-1-a</li> <li>• MAN M 3275-1</li> </ul>	<ul style="list-style-type: none"> <li>• IVECO FPT T2 E7</li> <li>• KOMATSU</li> <li>• HITACHI</li> <li>• SCANIA</li> <li>• MITSUBISHI</li> <li>• DEERE</li> <li>• PERKINS</li> <li>• CASE</li> <li>• NEW-HOLLAND</li> <li>• LIEBHERR</li> <li>• JCB, etc.</li> </ul>



### What is ANALYSIS Compared?

Anac is a preventive maintenance tool and a fleet management system based on used oils analyses ensuring a significant reduction of the Total Cost of Ownership (TCO) of the customer by:

- Preventing possible breakdowns,
- Following regularly the condition of the lubricant and the wear of the mechanical components,
- Reinforcing the lifetime and the reliability of the machines,
- Optimizing the drain intervals in a safe way.

Our professional customers are active in the automotive (on-road or off-road), industrial and marine (Inland and international) sectors. Anac diagnosis service is sold worldwide by Total affiliates to end-users.

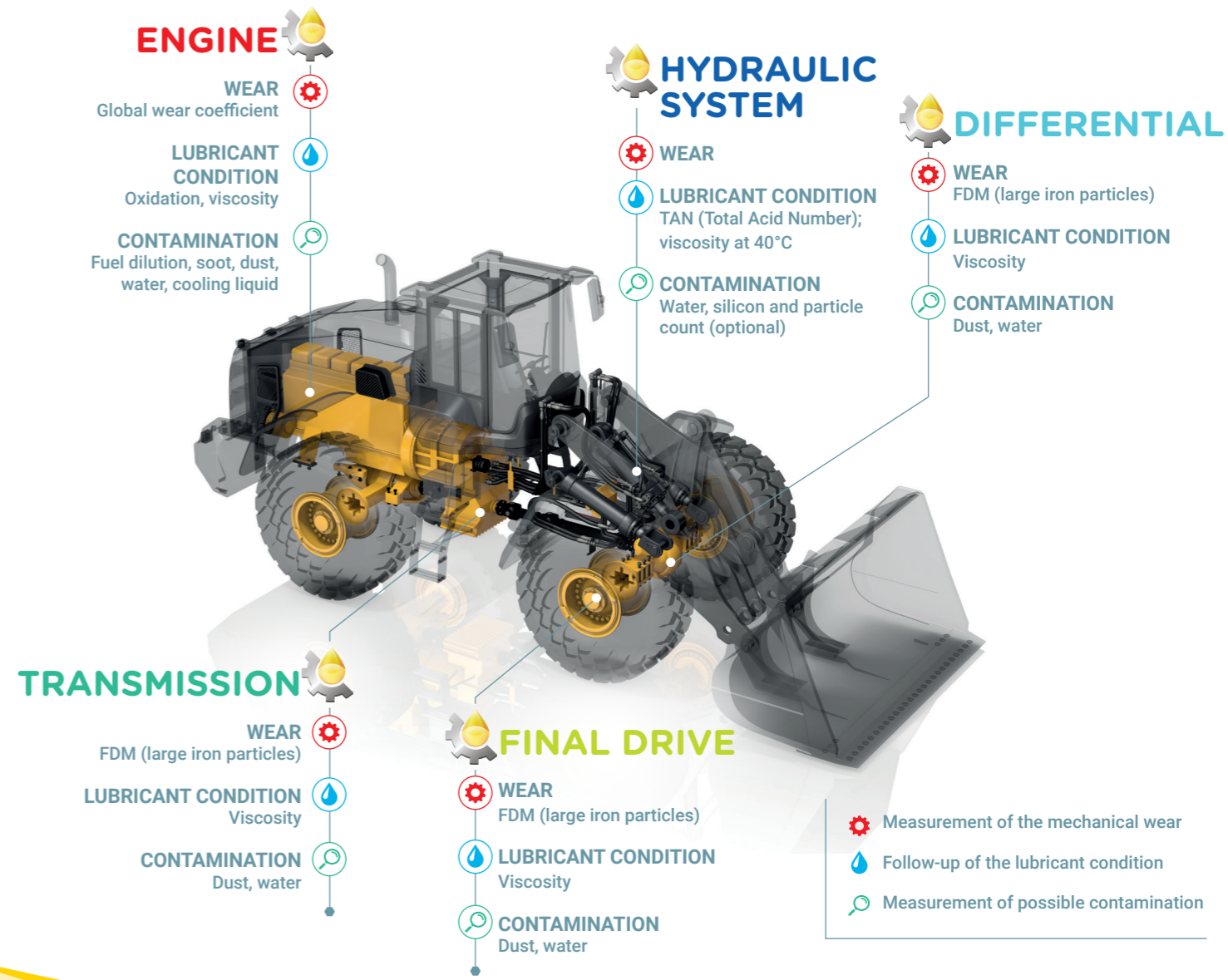


### Anac is a specialist in OFF-ROAD

How does Anac generate the diagnosis and propose corrective actions?

The diagnosis and the corrective actions are generated by Anac OFF-ROAD system based on:

- 45 years of experience and enrichment of the database Anac, more than 7.5 million analyses on 1 million monitored components,
- Customer feedbacks on successful corrective actions,
- A comparison between the measured values and the wear references thanks to algorithms excluding variable parameters such as oil top-ups or drain intervals.



## 4 Key Customer Benefits

**Reduces downtime of the entire machinery fleet.**  
Prevention of possible mechanical breakdowns.

**Increases the lifetime of your machinery.**  
Decrease of the risk of excessive wear of the mechanical components.

**Optimizes the maintenance costs.**  
Control of your maintenance budget.

**Reduces the Total Cost of Ownership (TCO).**  
Optimization of the amortization of your machinery part.

## 5 good reasons for choosing TotalEnergies

- A major player**  
With our production, supply chain and commercial presence in more than 150 countries, we deliver a full range of lubricants.
- Support and partnership**  
Thanks to local technical presence, we provide a high level of service to optimize your Total Cost of Ownership.

- References & OEMs**  
TotalEnergies cooperates with equipment manufacturers to create high-technology products for optimal performance and production of your machinery.
- Quality and environment**  
TotalEnergies ISO 9001 certification is the guarantee of a long term commitment to quality. From the initial design stage, our R&D teams seek to develop products that minimize toxicity risks and environmental impact.
- Innovation & Research**  
TotalEnergies invests in biotechnologies to find the most suitable components to reach energy efficiency through formulations designed in our Research Centers.





**TotalEnergies**

**TotalEnergies Lubrifiants**

562, avenue du Parc de l'île  
92029 Nanterre cedex  
France