



SHELL ROTELLA[®] T[™]
ENERGIZED PROTECTION[™]



SHELL ROTELLA[®] T[™] TRIPLE PROTECTION[®]

TRIPLE ACTION HELPS CONTROL • WEAR • DEPOSITS • EMISSIONS

ABOUT ENERGIZED PROTECTION[™]

You need to know your oil will protect your engine under all conditions. No matter how hot, cold, steep, dusty, muddy or extended your operations, you demand protection.

The Energized Protection of Shell Rotella heavy-duty diesel engine oils provides protection in three critical areas:

- 1. Acid control** — helps protect against corrosion from acids formed as fuel burns and as the oil ages
- 2. Deposit control** — helps keep engines clean for optimum performance and long life
- 3. Wear control** — helps keep moving metal engine surfaces for long engine life

Shell Rotella T Triple Protection oils provide triple action to help control wear, deposits and heat to continuously adapt to the needs of your engine for protection in on- and off-highway applications.

It meets or exceeds API CJ-4 requirements, and is designed to provide extra performance while helping to maximize equipment utilization and minimize cost of operation and lubricant ownership. Shell Rotella T Triple Protection performs well in both older and new engines.

- **22% less iron wear** than Shell Rotella T3 SAE 15W-40
- On average **50%* lower wear** in seven key industry tests**
- Up to **38% lower wear** in over **40 million miles of on and off-road testing** in late model engines**
- Up to **30% increase in active ashless performance chemistry** to protect against deposits and sludge**
- Designed to **provide maximum after-treatment service life** in systems on new trucks

Shell Rotella T motor oil with Triple Protection technology is our most significant advancement in heavy-duty motor oil in 30 years.

*Range of 27%-88% ** compared to Shell Rotella T CI-4 PLUS

PROTECTIVE POWER

Using modern multi-component chemistry, Shell Rotella T Triple Protection gives all-around protection for turbo- and non-turbocharged engines alike.

RELATIVE PROTECTION				
	Acid/Corrosion	Dirt & Deposits	Wear	Exhaust Filters
Shell Rotella T Triple Protection Triple Action helps control: • Wear • Deposits • Emissions	✓✓	✓✓	✓✓	✓✓
Shell Rotella T CI-4 PLUS • Reliable Lubrication	✓✓	✓✓	✓✓	N/A

SPECIFICATIONS AND APPROVALS

SAE VISCOSITY GRADE		
	15W-40	10W-30
API CJ-4, CI-4 PLUS, CI-4, CH-4, CF, SM, SL, SJ, SH; ACEA E9, E7; JASO DH-2, MA; Caterpillar ECF-1A, ECF-2, ECF-3; Cummins CES 20081; DDC 93K218; Deutz DQC III-05; MACK EO-O Premium Plus; Ford WSS-M2C171-E; MAN 3275; MB Approval 228.31; MTU Category 2; Renault Trucks RLD-3; Volvo VDS-4	✓	
API CJ-4, CI-4 PLUS, CI-4, CH-4, CF, SM, SL, SJ, SH; Caterpillar ECF-2, ECF-3; Ford WSS-M2C171-E		✓



DESIGNED TO MEET CHALLENGES



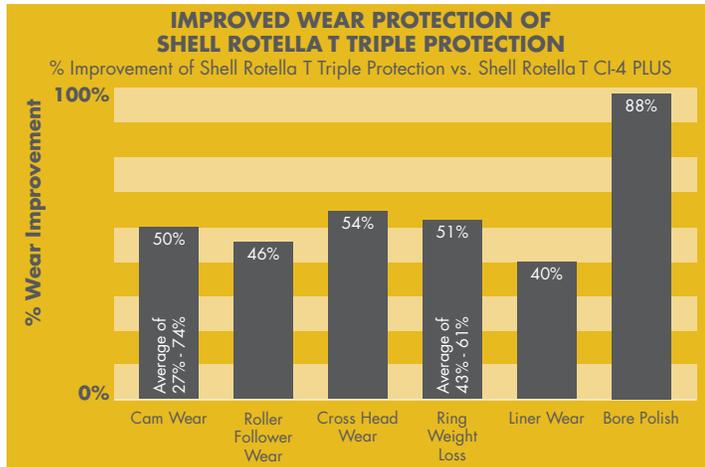
Shell Lubricants

TRIPLE PROTECTION® TECHNOLOGY

Triple Protection technology builds on the traditional strengths of wear protection and engine cleanliness of Shell Rotella T, but it also protects diesel particulate filters (DPFs) against buildup of harmful deposits. This technology has been proven **in over 40 million miles of durability testing**. And it provides excellent viscosity control with exceptional product durability.

ENERGIZED PROTECTION AGAINST WEAR

Proven in the lab: Shell Rotella T with Triple Protection technology provides on average **50%* lower wear in industry-recognized engine tests**. In seven out of seven tests designed to measure wear in six key areas of the engine, we see significantly improved wear protection (see chart). Maximum wear merits in Cummins ISM (1400 out of 1400). **Range of 27% - 88%*



Proven on the road: Just as important as any lab test, Shell Rotella T with Triple Protection technology has proven itself where our customers say it matters most — on the road. In **40 million miles of on-highway testing** with some of our leading fleet customers, this formulation has demonstrated significantly improved wear protection, with individual results of up to **38% less engine wear**. Significantly lower wear on the road: Up to **38% less iron wear** than Shell Rotella T 15W-40 CI-4 PLUS and up to **22% less iron wear** than Shell Rotella T3 15W-40.

Camshaft from 2006 DDC Series 60 with 964,600 km on Shell Rotella T Triple Protection 15W-40



Cylinder liner from 2006 Caterpillar C-15 with 106,900 km on Shell Rotella T Triple Protection 15W-40



Camshaft Bearings from 2006 DDC Series 60 with 878,900 km on Shell Rotella T Triple Protection 15W-40

Upper cam bearings



Lower cam bearings



ENERGIZED PROTECTION™ AGAINST DEPOSITS

The performance benefits of the unique combination of dispersants and detergents, boosted by the use of the dual-function additive component, are seen in **enhanced engine cleanliness and viscosity control** compared to previous generation oils (API CI-4 PLUS).

Deposit and sludge control: Our formula contains more dispersant molecules to control sludge, and more antioxidant molecules to control deposits, as demonstrated in the laboratory and in the field.

Piston cleanliness: Our Triple Protection technology features a unique, exclusive detergent system, specifically **designed to control piston deposits** in the hotter environments of 2007 engines, as well as provide exceptional piston cleanliness in older engines.

Improved cleanliness: In the Caterpillar 1R engine test, Shell Rotella T with Triple Protection technology shows clear visible improvements compared to previous-generation oils.

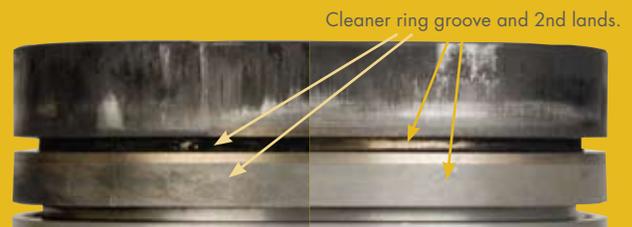
SHELL ROTELLA T WITH TRIPLE PROTECTION TECHNOLOGY



SHELL ROTELLA T CI-4 PLUS

Visible improvement in sludge control as measured in the Seq VG test method.

PISTON CLEANLINESS

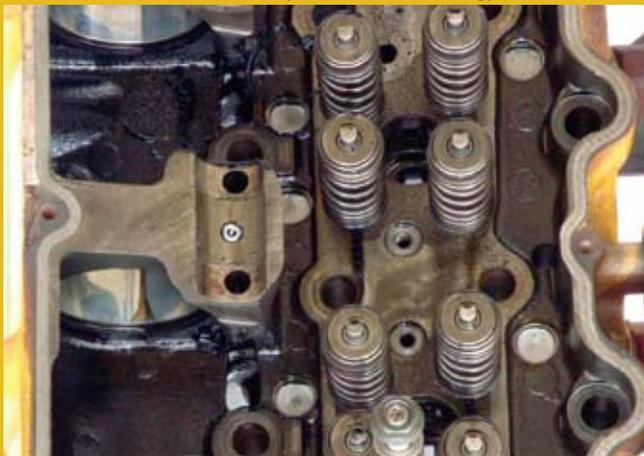


Conventional Detergent

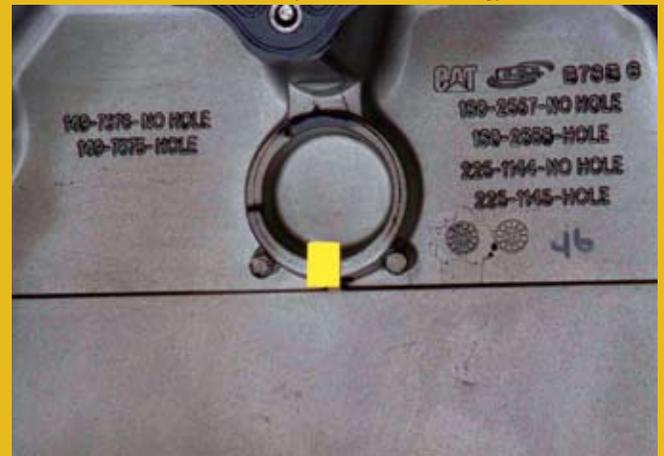
Exclusive Shell Detergent

Shell's exclusive detergent system provides superior piston and groove cleanliness in proprietary tests designed to evaluate the performance of detergents in engine oils.

Valve deck from Caterpillar C-15 with 106,900 km on Shell Rotella T with Triple Protection Technology 15W-40



Rocker cover from Caterpillar C-15 with 106,900 km on Shell Rotella T with Triple Protection Technology 15W-40



ENERGIZED PROTECTION AGAINST EMISSIONS

Shell Rotella T with Triple Protection technology helps control vehicle emissions in two ways: 1) by reducing the rate of lubricant-related DPF blockage compared to API CI-4 PLUS oils, and 2) by virtue of the improved wear and exceptional cleanliness, helping engines to remain in **top condition for efficient combustion**. Minimizing DPF blockage also helps maintain fuel economy, thus further controlling exhaust gas emissions.



L: Section of DPF showing channels blocked by lube-ash deposits from high-ash oil (white areas).



R: Similar section from engine using ~1% ash oil, such as Shell Rotella T Triple Protection, showing less blockage (fewer white areas).

APPLICATION GUIDE



Modern engines: Shell Rotella T Triple Protection oils use the latest additive technology to protect under the most severe engine conditions found in modern low-emission engines. Shell Rotella T Triple Protection is suitable for a wide range of heavy-duty engine applications. With its wide range of approvals and specifications from many of the world's leading engine makers, it is an excellent choice for on-highway fleets, general haul, construction, agriculture, public-transport operators and diesel pick-up trucks. It is designed to provide responsive protection that continuously adapts to your driving conditions resulting in, significantly improved: wear protection*, deposit control*, and resistance to breakdown under high temperatures*. The exclusive low-ash formulation helps protect the exhaust catalysts and particulate filters found on the latest low-emission vehicles. Suitable for most modern low-emission heavy-duty engines.



High-power use: With its excellent protection against wear and deposits, Shell Rotella T Triple Protection is suitable for a wide range of high-power, heavy-duty diesel-engine applications where resistance to increased heat and stress is required.



*Compared to API CI-4 PLUS engine oils

PRODUCT MATERIAL AND PACKAGE SIZE

PRODUCT	946ML X 12 BOTTLES	4L JUGS	9.5L JUGS	18.9L PAILS	208.2L DRUMS	975L BIN	BULK
Shell Rotella T Triple Protection							
15W-40 CJ-4	550019972 431-544-59	550019970 431-544-14	550019973 431-544-02	550019975 431-544-42	550019977 431-544-45	550020096 431-544-93	500004741 431-544-99
10W-30 CJ-4	550020044 431-543-59	550019974 431-543-14	—	550019976 431-543-42	550019990 431-543-45	550020095 431-543-93	500004740 431-543-99

OUR COMPLEMENTARY RANGE

In addition to the full range of Shell Rotella heavy-duty engine oils, Shell Lubricants offers a complete portfolio of lubricants for every part of your equipment, including Shell Spirax[®] gear and axle oils, Shell Donax[®] transmission fluids, Shell Retinax[®] greases, and Shell Rotella ELC Extended Life Coolant/Antifreeze.

HEALTH SAFETY AND ENVIRONMENT

Guidance on Health and Safety are available on the appropriate Material Safety Data Sheet, which can be obtained from your Shell representative or on www.shell.ca/lubricants

Protect the Environment: Take used oil to an authorized collection point. Do not discharge into drains, soil or water.

Advice: Advice on applications not covered in this leaflet may be obtained from your Shell representative..



**For more information, contact your local Shell representative,
visit www.shell.ca/rotella or call 1.800.661.1771**