

# DELO<sup>®</sup> GOLD ULTRA SAE 15W-40

Engine Protection at a Superb Value



**Delo<sup>®</sup>**  
Let's go further.™

# LET'S GO FURTHER WITH DELO® GOLD ULTRA SAE 15W-40.

When your heavy-duty equipment is working, your business is driving profits. At Caltex, our goal is to optimize your diesel engine performance — helping minimize operating costs and maximize equipment uptime.

As your lubrication partner, we strive to help keep your diesel equipment running reliably and efficiently in all kinds of operating conditions, including cold weather or extreme oil-drain intervals.

We understand the challenges facing diesel customers today and in the future:

- Higher performing diesel engines coming to market
- Different types of diesel fuels
- Latest Original Equipment Manufacturer (OEM) requirements and specifications
- Mixed diesel engine types and age of equipment
- Extending oil drain intervals
- Increasing engine durability

Count on Caltex's industry experience, technology leadership and the Delo® family of premium products to help you stay ahead of these challenges and protect and maximize the life of your vehicles.



## Reliability & Durability Are Our Priority.

Caltex lubricants stand for one thing above all else: reliability. Properly lubricating the inside of a heavy-duty diesel engine requires more than just creating a protective film. Caltex's premium formula Delo® Gold Ultra SAE 15W-40 provides excellent oxidation resistance, deposit and oil consumption control and wear performance to protect against loss of engine performance and life. Delo® Gold Ultra SAE 15W-40 has been formulated with ISOSYN® Technology to specifically protect your diesel equipment and vehicles, and reduce the need for multiple diesel engine oils. Delo's industry-leading lubricants have logged billions of miles and countless hours providing superior protection to diesel engine parts and maximizing fuel efficiency so your vehicles and equipment can go further.



# DELO® PROTECTS WITH ISOSYN® TECHNOLOGY.

The Delo® Gold Ultra SAE 15W-40 difference?

ISOSYN® Technology. It helps deliver the protection, performance and reliability you demand to help maximize equipment uptime.

Caltex uses ISOSYN® Technology to formulate its top-tier Delo® products. Premium base oils with high-performance additives, combined with our formulation expertise, provide superb protection for diesel engine parts – at an outstanding value.

## ISOSYN® Technology



Premium Base Oils



High Performance Additives



Caltex Formulation Expertise



Delo® with ISOSYN® helps:

- Extend service protection
- Maximize engine durability and life
- Minimize operating costs through improved fuel economy



## Improved Customer Reliability

Delo® with ISOSYN® Technology protects critical engine parts to help maximize engine life.

## DELO® GOLD ULTRA SAE 15W-40 EXCEEDS INDUSTRY SPECIFICATIONS AND OEM PERFORMANCE.

Delo® Gold Ultra SAE 15W-40 is a premium diesel engine oil formulated to provide excellent long-drain performance, superb engine life protection and excellent everyday performance in all types of operations including stop-and-go, long haul and high stress operating conditions.



Delo® Gold Ultra SAE 15W-40 has been specifically formulated to provide superb protection and performance in harsh operating conditions, regardless of the type of diesel engine (older or new) and alternative fuel types. Its robust formulation is designed to operate in a wide range of conditions and climatic areas helping to minimize the number of diesel engine oils required by customers.

**Delo® Gold Ultra SAE 15W-40 exceeds most industry and engine manufacturers' performance requirements.**

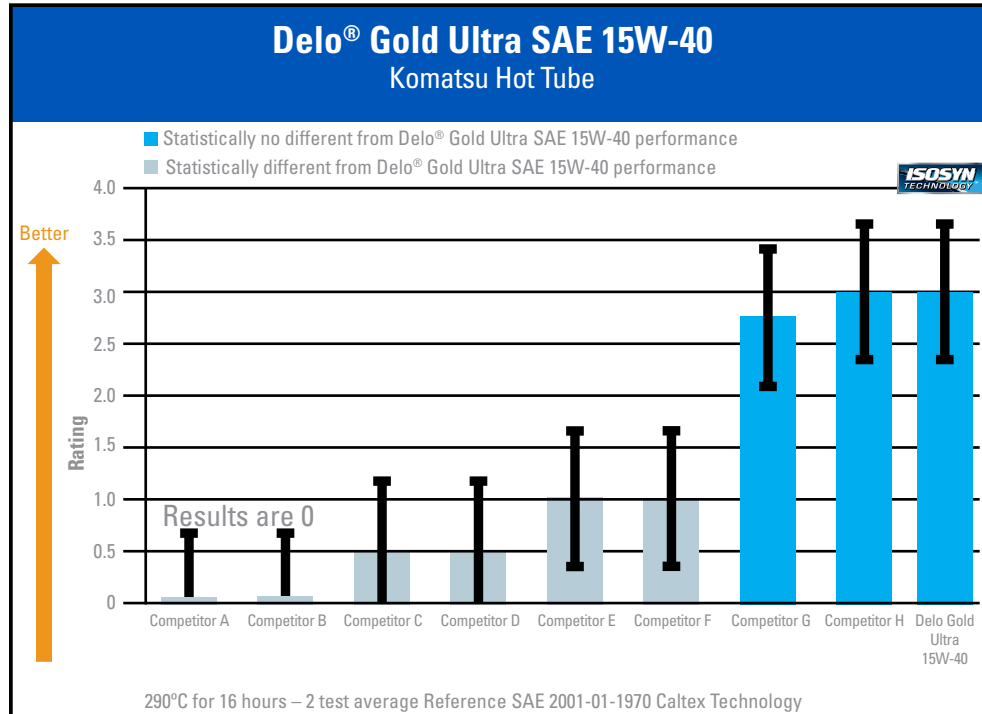
- API CI-4, CH-4 / SL
- Renault RLD-2
- Volvo VDS-3
- Mack EO-N
- MAN M 3275-1
- Detroit Diesel 93K215
- Cummins CES 20078

#### **Meet the requirements of:**

- Daimler MB 228.3
- Mack EO-N
- MTU Category 2
- Cummins CES 20077,76 and Cummins CES 20072,71
- Caterpillar ECF-1-a
- API CF-4, CF, CD
- ACEA E7, ACEA E5-02
- Global DHD-1

# DELO® GOLD ULTRA SAE 15W-40 DELIVERS RESULTS. SUPERB OXIDATION & DEPOSIT CONTROL.

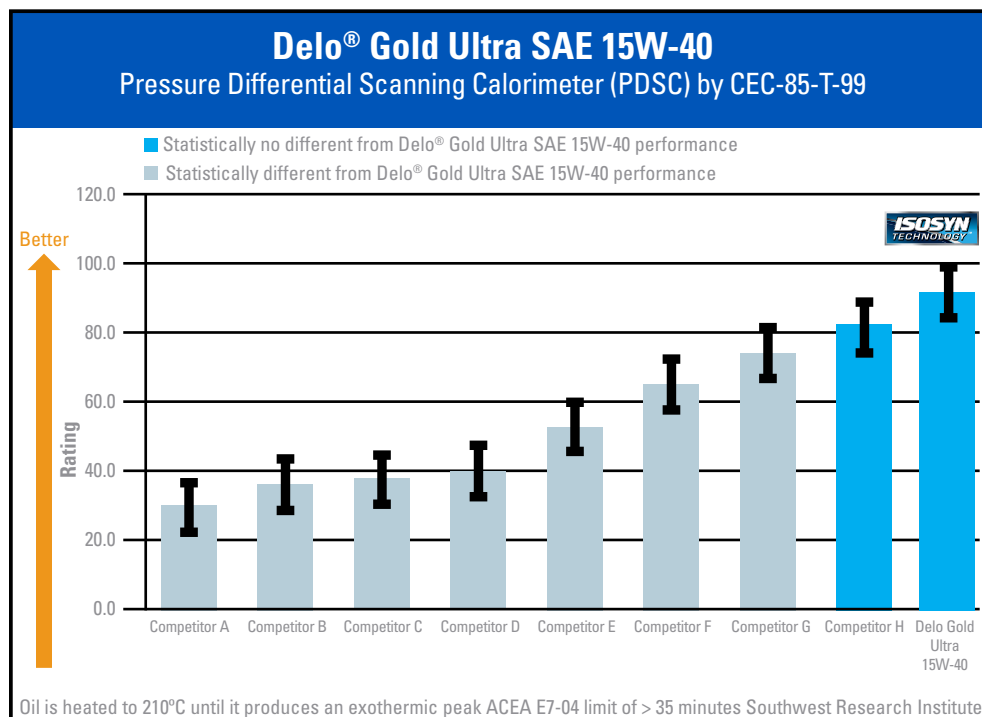
The Komatsu Hot Tube (KHT) and Pressure Differential Scanning Calorimeter (PDSC) tests are good indicators for an oil's capability to resist oxidation in high temperature conditions that can result in viscosity increase, piston deposits and sludge formation.



## Komatsu Hot Tube Test

This test is run at 290°C for 16 hours at which the amount of deposits formed are measured against a pre-determined deposit scale to show how well oil resists or forms deposits. It helps relate to how well an oil will perform under severe high temperature operating conditions that the oil will experience.

Delo® Gold Ultra SAE 15W-40 was run in this test and showed excellent results, even when compared against competitor premium tier heavy-duty engine oil formulations. These results indicate that Delo® Gold Ultra SAE 15W-40 provides excellent high temperature deposit control.



## Pressure Differential Scanning Calorimeter

The PDSC measures the thin-film oxidation resistance of engine oils at 210°C under dry air pressure of 100 psi. The onset of oxidation is detected by heat produced from the reaction. Higher rates of oxidations can cause more piston deposits, resulting in ring sticking and bore polishing.

Delo® Gold Ultra SAE 15W-40 and competitor top tier heavy-duty engine oils were run in this test and the results compared to each other. Delo® Gold Ultra SAE 15W-40 showed very good performance as compared to competitor products highlighting its robust formulation.



## PROVEN FIELD RESULTS

### DP WORLD ACHIEVES 57,000 HOURS OF ENGINE LIFE IN TERMINAL TRACTOR TRUCKS

DP World achieves excellent engine reliability using Delo® Gold Ultra SAE 15W-40 in round-the-clock port terminal truck operations in the United Arab Emirates.

DP World is one of the largest port operators in the world, running 65+ ports that handle an immense amount of container traffic. They run 24/7 and cannot afford downtime on their critical terminal tractor equipment.

One of their terminal tractor trucks achieved 57,000 hours of operation on a Cummins engine using Delo® Gold Ultra SAE 15W-40. The engine ran on diesel fuel with 500ppm sulfur content and oil drain intervals of 500 hours (twice the normal ODI).

Caltex and DP World had the opportunity to tear down the Cummins engine and inspect its parts for wear and deposit control performance. After 57,000 hours in severe service operation, the engine parts were in very good condition which reinforced the excellent performance provided by Delo® Gold Ultra in helping DP World achieve its terminal tractor reliability goals.

Achieving 57,000 hours of engine life with Delo® Gold Ultra reinforces why we use Caltex branded products for our diesel equipment.

*Ali Hussain Ali Alyasi  
Manager - Plant Workshop  
DP World*



#### Pistons

Pistons are in good condition with minimal deposits on the piston lands and all rings free moving.



#### Main Bearings

Main Bearings exhibit limited overlay removal and are in very good condition after 57,000 hours of use.



#### Rocker Arms

Rocker Arms are in very good condition with minimal sludge or deposit formation. The parts are also exhibit minimal wear.



#### Crankshaft

Crankshaft exhibits limited wear and is in very good condition. The crankshaft itself could be reused again based on the protection provided by Delo® Gold Ultra.



## PROVEN FIELD RESULTS

### GOLDEN ARROW ACHIEVES 630,000+ KILOMETERS OF ENGINE LIFE IN SEVERE BUS SERVICE OPERATION

Golden Arrow has a long integral history in the Capetown, South Africa market and is over 150 years old.

Originally a horse-drawn cart company, Golden Arrow has grown to one of the largest bus fleets in South Africa. They operate over 1,100 buses and their newest ones use Euro 5 common-rail diesel engines to help reduce the amount of particulate and Nitrous Oxide (NOx) emissions released into the atmosphere, allowing for improved air quality in Capetown. Golden Arrow has a long relationship with Caltex and is currently running the entire fleet on Delo® Gold Ultra and Delo® XLC coolant.

Caltex and Golden Arrow agreed to conduct an engine teardown and inspection of one of their MAN engines that had over 600,000 kilometers in severe service operation to see how the Delo® family of products has protected the engine parts.

The inspection overall showed a clean engine with minimal deposits and no visible sludge on the engine top deck and oil pan. As the engines components were removed they were inspected to check on their condition (see parts details to the right). Golden Arrow personnel were pleased with their decision to trust Caltex Delo® Gold Ultra and Delo® XLC to help their business go further.



*In our stop-start environment, a bus load of people and luggage can weigh up to 10 tons which increases the stress on the engine and drive train components. Using the right product is really important to us to make sure we don't have downtime which significantly inconveniences and adds more cost to our operation*

Gideon Neethling  
Divisional Engineer  
Golden Arrow Bus Services



#### Pistons

In very good condition with minimal deposit build up on the lands after 630,000 + kilometers of stop-and-go operation.



#### Piston Liners Exterior

No visible pitting or corrosion showing the excellent protection provided by Delo® XLC.



#### Connecting Rod Bearings

There is minimal overlay removal showing – these are in excellent condition after this many hours and severity of operating conditions.



#### Cam Shaft

No visible abrasive or skidding wear on the lobes. Just even polishing which indicates excellent soot handling and wear protection performance by Delo® Gold Ultra.







CALTEX

**ISOSYN**  
TECHNOLOGY™



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