



# CHEVRON DELO<sup>®</sup> 400 MULTIGRADE

## SAE 15W-40

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### CUSTOMER BENEFITS

Chevron Delo 400 Multigrade heavy duty motor oil delivers value through:

- **Reduced operating costs** — Exceptional soot dispersancy and wear control extend engine life to overhaul and help defer the cost of investing in new equipment. Filters are kept cleaner longer, assuring maximum filter life. Cylinders, pistons, rings, and injectors are well protected against wear and corrosion, lasting longer in service and requiring less maintenance. Extended service capable, which contributes to maximum vehicle utilization and minimal downtime.
- **World class performance and credentials** — The first true “World Oil” to meet the engine performance requirements of North American (API CI-4 PLUS), European (ACEA E5), and Asian (JASO DH-1) engine manufacturers. International customers, and those using a variety of engine brands, are assured consistent quality and premium performance no matter where they purchase Chevron Delo 400 Multigrade around the globe.
- **Lower oil cost** — Low oil consumption as proven by excellent deposit control on piston crown lands means less oil sump “top-off” is required. Outstanding oxidation stability contributes to long oil service life. Capable of extending oil drain intervals while providing superior protection and performance; maximizing equipment uptime and minimizing the amount of oil used.
- **Improved profitability** — Unsurpassed protection against valve train wear provides fuel economy benefits. Extended oil drain capability means equipment is in service longer generating revenue.
- **Reduced inventory costs** — One oil for all services, in four-stroke gasoline and all naturally aspirated turbocharged and modern electronically controlled/low emission diesel engines. One oil that meets the engine performance requirements of North American, European, and Asian engine manufacturers. One oil that allows users with a wide mix of engine brands to enjoy simplified inventory and dispensing systems that help save money, space, handling time, and avoid product misapplication.

- **Uniform product availability around the world** — With the same formulation at all global locations, providing world class performance that



- exceeds qualifications of North American (API CI-4 PLUS), European (ACEA E5) and Asian (JASO DH-1) global engine manufacturers. International customers and those operating a variety of engine types are assured of consistent quality and premium performance no matter where in the world they purchase Chevron Delo 400 Multigrade.
- **Improved resale value potential** — Low engine wear, maximum fuel economy, and engine cleanliness result in higher equipment resale value.
- **Warranty Plus protection** — Bumper-to-bumper warranty protection from the engine to the drive train. Payment for Chevron lubricant-related damage to your equipment, including parts and labor. Problem resolution and technical advice from Chevron's lubrication experts.
- **Access to Chevron's lubrication and industry knowledge** improves the bottom line business results of trucking industry professionals.

### FEATURES

Chevron Delo 400 Multigrade heavy duty motor oil is an industry leading, award winning, super premium quality “universal” engine oil which exceeds industry and engine manufacturers' performance requirements.

It is formulated using the most advanced additive technology available to provide outstanding engine protection under both pre- and post-2002 EPA exhaust particulate emissions standards for on highway diesel trucks, using both high and low sulfur diesel fuels.

Chevron Delo 400 Multigrade is formulated with ISO-SYN<sup>®</sup> base stocks, which rival synthetics in critical engine tests, and an optimal blend of the latest technology in dispersant, detergent, oxidation inhibition, anti-wear, corrosion inhibition, viscosity improver, and defoaming additives.

As far back as 1998, Chevron Delo 400 Multigrade was ready for the requirements of engines equipped with Exhaust Gas Recirculation (EGR), and requiring API CI-4 and/or Cummins CES 20078. Today, Delo 400

Multigrade meets the most stringent EGR soot control requirements, the API CI-4 PLUS specification.

The current Delo 400 Multigrade formulation has been optimized to meet the demands of EGR engines while at the same time providing the highest level of performance in conventional engines and other engine technologies like Caterpillar ACERT™.

Chevron Delo 400 Multigrade has been recognized by Lubricants World magazine for outstanding customer value.

## AWARDS

2001 — Lubricants World Annual Automotive Product Award

1999 — Lubricants World Product of the Year

## FUNCTIONS

Chevron Delo 400 Multigrade keeps rings clean and free for better combustion pressure and to provide minimal wear. Chevron Delo 400 Multigrade reduces valve and piston crown land deposits, thus lowering oil consumption. Its high level of ashless dispersants keeps fuel soot in suspension and, thus, avoids filter plugging, heavy cylinder head sludge, abrasive polishing wear, high viscosity increase, and oil gelling. These problems can result in excessive engine wear and bearing failure on startup, without prior indication to the operator.

The high base number provides engine protection in off highway or high sulfur fuel applications. In addition, the combination of high base number and excellent dispersancy allows the potential for longer drain intervals in on highway service.

Specially selected oxidation inhibitors control oxidation, sludge, and undue thickening during oil drain periods. The high level of extreme pressure antiwear additive protects against valve train wear and scuffing of highly loaded parts operating under boundary lubrication. A specially selected viscosity index improver ensures easy flow at low temperatures and excellent film protection in hot engine areas. A defoaming additive prevents air entrapment.

The combination of premium dispersant additives and ISOSYN technology allows Delo 400 Multigrade to effectively disperse soot and keep it in suspension. This minimizes the risk of valve train wear, lever polishing and filter plugging.

## APPLICATIONS

Chevron Delo 400 Multigrade is a mixed fleet motor oil recommended for all naturally aspirated and turbo-charged four-stroke diesel engines and four-stroke gasoline engines in which the API grade and SAE 15W-40 viscosity grade are recommended. It is formulated for engines operating under severe service and a wide range of climatic conditions.

Delo 400 Multigrade is excellent for use in new advanced engines developed in response to 1998 and 2002 emissions standards and in engines equipped with features like four-valve heads, supercharging, turbo charging, direct injection, shorter piston crowns, higher power density, intercooling, full electronic management of fuel and emissions systems, exhaust gas recirculation, and exhaust particulate traps.

It is formulated for superior performance with both normal and low sulfur diesel fuels.

This product is recommended for use in older engines, as well as in today's most modern low emission designs.

Chevron's primary recommendation for two-stroke diesel engines is Chevron Delo® 100 Motor Oil SAE 40 or 50, specifically for the Detroit Diesel Series 149 engine.

Chevron Delo 400 Multigrade can be used in powershift transmissions requiring a Caterpillar TO-2 fluid.

Chevron Delo 400 Multigrade is recommended for use in federally inspected meat and poultry plants as an H2 lubricant where no food contact will occur.

**Chevron Delo 400 Multigrade meets:**

- **API Service Categories** CI-4 PLUS<sup>1</sup>, CI-4, CH-4, CG-4, CF-4, CF, CE<sup>2</sup>, CD<sup>2</sup>, SL, SJ, SH<sup>2</sup>, SG<sup>2</sup>
- **ACEA European Service Categories** E5, E3, E2
- **JASO Asian Service Categories** DH-1
- **Global Service Categories** DHD-1
- **major diesel engine manufacturers' requirements**

Caterpillar	J.I. Case
Cummins	John Deere
DAF	Komatsu
DaimlerChrysler	Kubota
Detroit Diesel	Mack
Deutz	MAN
Fiat / Allis	Mercedes
Ford	Mitsubishi
GMC / GM	MTU
Hino	Navistar
International	Nissan
Isuzu	Renault
Iveco	Scania
	Volvo

- **engine test performance requirements**

- Caterpillar ECF-1
- Cummins CES 20078, 20077, 20076, 20071
- Engine Manufacturers Association (EMA) LRG-1
- DDC Types 1 and 2
- Mack EO-N Premium Plus 03, EO-N Premium Plus, EO-M PLUS, EO-M
- MAN 271, 3275
- Mercedes Benz 228.3, 228.1
- MTU Categories 2 and 1
- Volvo VDS-3, VDS-2, VDS

**TYPICAL TEST DATA**

SAE Grade	15W-40
CPS Number	235101
MSDS Number	6711
API Gravity	28.6
Viscosity, Kinematic cSt at 40°C cSt at 100°C	125 15.1
Viscosity, Cold Crank, C/Poise	-20/65
Viscosity Index	125
Flash Point, °C(°F)	238(460)
Pour Point, °C(°F)	-31(-23)
Sulfated Ash, wt %	1.41
Base Number, ASTM D 2896	12.2
Phosphorus, wt %	0.136
Zinc, wt %	0.148

Typical test data are average values only. Minor variations which do not affect product performance are to be expected in normal manufacturing.

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1. Licensable September 2004  
2. Obsolete specification