CHEVRON DELO® 400

SAE 10W-30, 10W, 20, 30, 40, 50

CUSTOMER BENEFITS

Chevron Delo 400 heavy duty motor oils deliver value through:

- **Long oil life** — Outstanding oxidation stability and high initial base number means long oil service life between drains.
- **Lower oil costs** due to reduced piston crownland deposits and oil consumption. Low oil consumption means less oil sump "top-off" is required.
- **Simplified inventory and dispensing systems** save money. One oil for all services, both diesel and gasoline means mixed fleets use the same oil in all engines.
- **Long filter life** — The high level of dispersancy keeps deposit precursors finely dispersed in the oil so that they pass through the engine and filter without harm. With reasonable oil drain periods, long filter change intervals are assured.
- **Long engine life** due to excellent control of deposits and wear extend the engine overhaul intervals. Less downtime lowers operating costs.
- **Minimum combustion chamber and valve face deposits** are the result of low sulfated ash levels in the oil.
- **Wear protection** of the valve train and against scuffing of highly loaded parts.
- **Superior engine cleanliness**, even at extended oil drain intervals. High detergency provides excellent deposit and sludge control in the piston ring belt area.

FEATURES

Chevron Delo 400 heavy duty motor oils are exceptional, super premium quality "universal" engine oils which exceed industry and engine manufacturers' performance requirements.

They are formulated utilizing the most advanced additive technology available to provide outstanding engine protection under both pre- and post-1998 EPA standards for exhaust particulate emissions for on highway diesel trucks, using both high and low sulfur diesel fuels.

Chevron Delo 400 SAE 10W, 20, 30, 40, and 50 are manufactured using carefully selected premium paraffinic base oils and an optimal blend of the latest technology in dispersant, detergent, oxidation inhibition, antiwear, corrosion inhibition, and defoaming additives.

Chevron Delo 400 **SAE 10W-30** is formulated with ISOSYN® base stocks.

FUNCTIONS

Chevron Delo 400 oils keep rings clean and free for better combustion pressure and to provide minimal wear. Their 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.

Chevron Delo 400 oils reduce valve and piston crownland deposits and, thus, lower oil consumption.

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 longer drain intervals in on-highway service.

A specially selected oxidation inhibitor controls oxidation 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 defoaming additive prevents air entrapment.

APPLICATIONS

Chevron Delo 400 oils are mixed-fleet motor oils recommended for all four-stroke gasoline diesel engines operating under severe service and subjected to wide variations in climatic conditions.

Chevron Delo 400 oils are excellent for use in new advanced engines developed in response to 1998 lower exhaust particulate emissions with features such as four-valve heads, turbocharging, retarded fuel injection timing, direct injection, shorter piston crowns, higher power density, peak firing pressures up and beyond 2300 psi,

intercooling, full electronic management of fuel systems, and exhaust particulate traps.

Chevron Delo 400 oils are also formulated for superior performance in older engines using both normal, high, and low sulfur diesel fuels.

Chevron Delo 400 oils are not recommended for use in DDC two-stroke engines.

Chevron Delo 400 SAE 30 can be used in powershift transmissions requiring a Caterpillar TO 2 or an Allison C4 fluid.

Chevron Delo 400 SAE 10W, 20, 30, and 40 meet the requirements (discontinued in 1998) of the **U.S. Department of Agriculture (USDA)** for use in federally inspected meat and poultry plants as H2 lubricants with no food contact.

Chevron Delo 400 oils meet:

- **API Service Categories**
  - — CI-4, CH-4, CG-4, CF-4 (SAE 10W-30)
  - — CF, CD[1], SG[1], SH[1]
  - — SL (SAE 10W-30, 20, 30, 40, 50), SJ (SAE 10W-30)
  - — CE[1] (SAE 30)

1. Obsolete specification

- **major diesel engine manufacturers' requirements**

  Caterpillar, Cummins, DAF, DaimlerChrysler, Detroit Diesel (four-stroke), Deutz, Fiat / Allis, Ford, GMC / GM, International, Iveco, Volvo, J.I. Case, John Deere, Komatsu, Kubota, Mack, MAN, Mercedes, MTU, Navistar, Renault, Scania
- **performance requirements of**
  - — Allison C4 Fluids (SAE 10W-30, 10W, 30)
  - — Vickers Pump Test, 35VQ25A (SAE 10W)
- **engine test performance requirements**
  - — Cummins CES 20078, 20076, 20071 (SAE 10W-30)
  - — DDC/MTU Types/Categories 1 and 2 (SAE 30, 40)
  - — Mack EO-M PLUS, EO-M, EO-L PLUS, EO-L (SAE 10W-30)
  - — MAN 270 (SAE 30, 40, 50)
  - — Mercedes Benz 228.2 (SAE 30, 40, 50)
- **manufacturers' performance requirements**
  - — Chrysler MS 6395-G (SAE 10W-30, 30)

TYPICAL TEST DATA

SAE Grade	10W-30	10W	20	30	40	50
CPS Number	*235200*	*235109*	*235117*	*235118*	*235120*	*235119*
MSDS Number	*6711*	*6711*	*6711*	*6711*	*6711*	*6711*
API Gravity	30.6	30.6	30.7	29	28.9	28
Viscosity, Kinematic cSt at 40°C cSt at 100°C	 70 11.1	 55 7.0	 68 8.9	 105 12.1	 146 14.9	 225 18.4
Viscosity, Cold Crank, °C/Poise	-25/64.4	-25/64.4	—	—	—	—
Viscosity Index	150	109	104	104	102	98
Flash Point, °C(°F)	226(439)	221(430)	238(460)	242(468)	250(482)	254(489)
Pour Point, °C(°F)	-42(-44)	-32(-26)	-30(-22)	-31(-24)	-33(-27)	-31(-24)
Sulfated Ash, wt %	1.34	1.18	1.18	1.35	1.35	1.35
Base Number, ASTM D 2896	10.1	9.2	9.2	10.2	10.2	10.2
Phosphorus, wt %	0.126	0.114	0.114	0.116	0.116	0.116
Zinc, wt %	0.140	0.127	0.127	0.127	0.127	0.127

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