



CHEVRON DELO[®] HEAVY DUTY EP

CHEVRON DELO[®] HEAVY DUTY MOLY 3% EP

CHEVRON DELO[®] HEAVY DUTY MOLY 5% EP

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CUSTOMER BENEFITS

Chevron Delo Heavy Duty EP, Delo Heavy Duty Moly 3% EP and Delo Heavy Duty Moly 5% EP greases deliver value for the off-road construction and mining industries by offering:

- **Excellent corrosion and wear protection** in severe off-highway heavy duty construction and mining applications
- **Excellent water resistance** in both submerged and direct pressure spray situations
- **Excellent shock load protection** through its unique formulation consisting of high viscosity base oils coupled with a customized high performance extreme pressure (EP) additive package
- **Wide service ranges** including OEM applications where 3% and 5% molybdenum additions are required to meet warranty specifications

FEATURES

Formulated with Chevron ISO SYN[®] base stocks, Chevron Delo Heavy Duty EP greases are multipurpose, high performance products specially formulated for plain and anti-friction bearing applications operating under high stress/high load conditions, coupled with high ambient temperatures typically found in severe, heavy duty off-road applications. Developed as a true contractors product, this line of grease was specifically designed to lubricate and protect equipment that is subjected to the most demanding of conditions.

Chevron Delo Heavy Duty EP greases are manufactured using select, highly refined, high viscosity base oils using a lithium complex thickener system that includes excellent rust and oxidation inhibitors coupled with extreme pressure and tackiness additives. The non-moly version is red in color and stringy in texture. Additionally, this comprehensive line includes 3% and 5% moly versions to meet the demands of OEM manufacturers who require

molybdenum disulfide in the grease to meet required warranty specifications. These products are grey/black in color and stringy in texture.

The lithium complex thickener in Chevron Delo Heavy Duty EP greases elevates the dropping point to approximately 265°C (510°F) making them excellent for use in applications where sustained high operating temperatures are common.

Additionally, since they are all comprised of the same base formulation, they are completely compatible with one another.



APPLICATIONS

These greases are recommended for applications operating in the temperature range of -26°C to 177°C (-15°F to 350°F). Please refer to note below regarding cold weather performance.¹

It should be noted that Delo Heavy Duty EP greases are not intended for use in high-speed bearing applications such as those found in electric motors due to the greases' high viscosity base stocks formulation. When in doubt, please consult your Chevron representative or OEM maintenance manual for application parameters when considering a switch to these greases.

Chevron Delo Heavy Duty EP greases are ideal for a wide variety of Off-Road Construction applications across several industries:

- **Off-Road Construction** — These greases display outstanding water washout and spray-off resistance properties in wet, off-road environments and offer excellent shock load extreme pressure (EP) protection. Unique additive technology of these products makes them tenacious at adhering to metal surfaces found in this industry while protecting these vital components from rust and corrosion. Applications for the product include all types of heavy-duty earth moving machinery, including tractors (dozers), excavators, backhoes, shovels,

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high lifts, articulated loaders, haul trucks, tri-axle dumps and more. They are excellent for heavily loaded machine implement pins and bushings, and other applications operating in severe, high shock-load environments where metal to metal contact wear often occurs. Since Chevron Delo Heavy Duty EP greases are offered in 3% and 5% moly containing versions, they are also able to meet wide off-road OEM application ranges using one common product line, thus reducing field inventory. Because they are lithium complex thickened, the non-moly version is also excellent for mixed fleet applications where disc brake lubrication is required, such as pick-up trucks.

- **Surface and Underground Mining and Quarry** — Applications appropriate for these greases include those found above plus pins and bushings on buckets, loaders, shovels and continuous miners, shaker screens, crushers, and conveyors.
- **Agriculture** — Will serve as an excellent multi-purpose heavy duty lubricant for both general and industrial farm and agricultural use, from medium to heavy duty front steer and articulated tractors and loaders to larger new rubber tracked units. These products will work well in many applications including three point hitches, high lift pins and bushings and other heavy duty farm related industrial machinery.

1. **Note:** Chevron Delo Heavy Duty EP greases are designed using high viscosity base oils. These oils offer excellent protection in severe duty, high shock load conditions where typical ambient temperatures are above freezing. In cold weather climate conditions, these products are not recommended for applications involving centralized automatic grease dispensing systems. Because each application varies, this does not mean these products will not work in centralized systems, only that you need to consult your equipment OEM or Chevron Lubrication Specialist before switching over to these products in cold weather operation.

It should also be noted that in cases where centralized automatic dispensing systems or long manual grease runs are the preferred method of lubrication and normal operating temperatures are consistently well below 20°F, Chevron Delo Greases EP, available in NLGI grades 2, 1, 0 and 00, would offer better pumpability. They would also be the preferred choice for onboard vehicle lubrication systems operating in severe cold weather service. Chevron Delo Greases EP are blue in color and are fully compatible with Chevron Delo Heavy Duty EP greases. Please consult your local Chevron Lubrication Specialist should you have any concerns in this regard.

- **Logging and Timber** — These lubricants are outstanding for severe service applications related to this industry such as pins and bushings found in heavy duty on/off road logging haul trucks, cranes and log skidders.
- **Heavy Duty On/Off Highway Road Construction and Maintenance Vehicles** — These products are well suited for greasing on/off road heavy duty tri-axle dump trucks and cement mixers that also find their way off road as much as on. Chevron Delo Heavy Duty EP greases are an excellent choice for king pins, bushing and bucket pins, 5th wheels and other severe duty applications found on these types of vehicles. They are also ideally suited for on highway heavy duty applications as well as airport fixed ground operation snow and ice removal equipment, such as plows, blowers and salt spreaders when the preferred method of lubrication is by manual application. These products were formulated using a new rust inhibitor package tested with 0.5% mixtures of magnesium chloride and calcium chloride road de-icers and were proven to reduce rust and corrosion when these corrosive materials were present. In colder climates, the NLGI 1 grade versions would be preferred product of choice. (See note below for severe cold weather operations.)

Chevron Delo Heavy Duty EP greases meet the requirements of the Mack MG-C grease specification. They also meet Caterpillar recommendations for greases containing 3% and 5% molybdenum disulfide.

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TYPICAL TEST DATA

	EP 1	EP 2	Moly 3% EP 1	Moly 3% EP 2	Moly 5% EP 1	Moly 5% EP 2
Product Number	222207	222206	222231	223407	222232	223408
MSDS Number	23598	23598	23600	23600	23600	23600
Molybdenum Disulfide content%	—	—	3	3	5	5
Operating Temperature, °C(°F)						
Minimum ¹	-26(-15)	-26(-15)	-26(-15)	-26(-15)	-26(-15)	-26(-15)
Maximum ²	177(350)	177(350)	177(350)	177(350)	177(350)	177(350)
Penetration, at 25°C (77°F) Worked, 60 strokes	325	280	325	280	325	280
Dropping Point, °C(°F)	265(509)	265(509)	265(509)	265(509)	265(509)	265(509)
Four Ball						
Weld Point, kg	500	500	500	500	500	500
Wear, Scar Diameter, mm	0.43	0.43	0.43	0.43	0.43	0.43
Timken OK Load, lb	75	80	70	70	70	70
Load Wear Index, kg	75	75	75	75	75	75
Bearing Water Washout, wt % Loss at 175°F	5	4	5	4	5	4
Water Spray-off, % at 100°F	25	15	25	15	25	15
EMCOR Dynamic Bearing Rust, 10% Synthetic Sea Water, ASTM D 6138	0,0	0,0	0,0	0,0	0,0	0,0
Bearing Rust, 5% Synthetic Sea Water, ASTM D 5969	Pass	Pass	Pass	Pass	Pass	Pass
Bearing Rust, 0.5% MgCl ₂ Road De-Icer CaCl ₂ Road De-Icer ASTM D 5969	Pass Pass	Pass Pass	Pass Pass	Pass Pass	Pass Pass	Pass Pass
Lincoln Ventmeter, psig at 30 s, at						
75°F	250	625	250	510	250	450
30°F	600	1600	600	1700	600	1550
0°F	1720	1800	1720	1800	1720	1725
-22°F	†	†	†	†	†	†
DIN 51805, psi						
68°F (20°C)	0.5	2	0.5	2	0.5	1
32°F (0°C)	2	5	2	4	2	4
-4°F (-20°C)	10	22	10	19	10	20
-22°F	38	max pres- sure	38	max pres- sure	38	max pres- sure
Copper Corrosion	1b	1b	2b	2b	2b	2b
Thickener, % Type	7.0 Lithium Complex	13.0 Lithium Complex	7.0 Lithium Complex	13.0 Lithium Complex	7.0 Lithium Complex	13.0 Lithium Complex

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	EP 1	EP 2	Moly 3% EP 1	Moly 3% EP 2	Moly 5% EP 1	Moly 5% EP 2
ISO Viscosity Grade Base Oil Equivalent	320	320	320	320	320	320
Viscosity, Kinematic* cSt at 40°C cSt at 100°C	383 25	383 25	383 25	383 25	383 25	383 25
Viscosity, Saybolt* SUS at 100°F SUS at 210°F	2058 124	2058 124	2058 124	2058 124	2058 124	2058 124
Viscosity Index	85	85	85	85	85	85
Oil Separation, wt%	2	2	2	2	2	2
Flash Point, °C(°F)*	274(525)	274(525)	274(525)	274(525)	274(525)	274(525)
Texture	Stringy	Stringy	Stringy	Stringy	Stringy	Stringy
Color	Red	Red	Gray/Black	Gray/Black	Gray/Black	Gray/Black

1. Minimum operating temperature is the lowest temperature at which a grease, already in place, could be expected to provide lubrication. Most greases cannot be pumped at these minimum temperatures.
 2. Maximum operating temperature is the highest temperature at which the grease could be used with frequent (daily) relubrication.
- * Determined on mineral oil extracted by vacuum filtration.
Not tested at this temperature.
- † Too stiff at this temperature to pump through device.

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