



DELO[®] SYN-GREASE[™] SXD 220 MOLY 5% EP 1 DELO[®] GREASE ESI[®] HD MOLY 5% EP DELO[®] GREASE ESI[®] HD MOLY 3% EP DELO[®] GREASE ESI[®] HD EP 1, 2

PRODUCT DESCRIPTION

Delo[®] Grease ESI[®] HD EP is a comprehensive line of greases that are available with or without molybdenum disulfide. These greases are designed for plain and anti-friction bearing applications operating under high stress/high load conditions, coupled with high ambient temperatures typically found in heavy duty off-road applications.

CUSTOMER BENEFITS

Delo Syn-Grease SXD 220 Moly 5% EP 1, Delo Grease ESI HD Moly 5% EP, Delo Grease ESI HD Moly 3% EP and Delo Grease ESI HD EP greases deliver value for the off-road construction and mining industries by offering:

- **Corrosion and wear protection**
- **Water resistance** in both submerged and direct pressure spray situations
- **Shock load protection**
- **Performance across a wide temperature range** from extremely hot to extremely cold conditions, this unique Heavy Duty EP product line delivers when needed most

FEATURES

Delo Grease ESI HD 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 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 demanding conditions.

ISOSYN[®]
TECHNOLOGY

DELO SYN-GREASE SXD 220 MOLY 5% EP

Our product to use in the most demanding applications. This product features synthetic base oil in a lithium complex thickener system. Provides excellent corrosion protection, water resistance, and shock loading capability. This product also provides excellent performance throughout a wide temperature range. It is especially effective in very cold climates or where temperature ranges vary dramatically in a short period of time. It contains 5% moly which is desired by many OEMs for off-road applications.

Product(s) manufactured in the USA, Colombia and El Salvador.

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

A **Chevron** company product

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Delo® Syn-Grease™ SxD 220 Moly 5% EP 1
Delo® Grease ESI® HD Moly 5% EP
Delo® Grease ESI® HD Moly 3% EP
Delo® Grease ESI® HD EP — Continued

DELO® GREASE ESI® HD MOLY 5% AND 3%

This tier of products features 5% or 3% moly sought after by many OEMs in off-road applications. These products are formulated using highly refined base oils in a lithium complex thickener system. They also feature better corrosion resistance, wear control, and shock loading than our basic Delo Grease ESI HD EP product. They provide very good protection over a wide temperature range.

DELO GREASE ESI HD EP

Our basic product which works in many applications and provides good protection from wear, shock loading, and fairly effective operating temperature range. This product features high viscosity index conventional oil in a lithium complex thickener system. The product also provides excellent corrosion protection. This product does not contain moly.

Delo Grease ESI HD EP greases are manufactured using select, highly refined 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 5% and 3% moly versions to meet the demands of OEM manufacturers who require molybdenum disulfide in the grease to meet required warranty specifications. These moly-containing products are grey/black in color and stringy in texture.

The lithium complex thickener in Delo Grease ESI HD 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 compatible with one another.

APPLICATIONS

These greases are recommended for applications operating over wide temperature ranges.

Delo Grease ESI HD 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.

Delo Grease ESI HD 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 most types of heavy-duty earth moving machinery, including tractors (dozers), excavators, backhoes, shovels, 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 Delo Grease ESI HD EP greases are offered in 5% and 3% 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.

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- **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.
- **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. Delo® Grease ESI® HD 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, where moly is required, the Delo Syn-Grease SXD 220 Moly 5% EP 1 grade would be the preferred product of choice.

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

Note 1: Delo Grease ESI HD 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. For extreme cold weather climate conditions, Chevron recommends using Delo Syn-Grease SXD 220 Moly 5% EP 1 for equipment that requires the product to be used in centralized automatic grease dispensing systems.

Because each application varies, you should consult your equipment OEM or Chevron Lubrication Specialist before switching over to these products.

Note 2: 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, Delo Grease ESI HD 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. Delo Syn-Grease SXD 220 Moly 5% EP and Delo Grease ESI HD EP are fully compatible. Please consult your local Chevron Lubrication Specialist for more information.

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Delo® Syn-Grease™ SXD 220 Moly 5% EP 1
Delo® Grease ESI® HD Moly 5% EP
Delo® Grease ESI® HD Moly 3% EP
Delo® Grease ESI® HD EP – Continued

TYPICAL TEST DATA

	Delo Syn-Grease SXD 220 Moly 5% EP 1	Delo Grease ESI HD Moly 5% EP 1	Delo Grease ESI HD Moly 5% EP 2	Delo Grease ESI HD Moly 3% EP 1	Delo Grease ESI HD Moly 3% EP 2	Delo Grease ESI HD EP 1	Delo Grease ESI HD EP 2
<i>Product Number</i>	259115	259121	259120	259123	259122	259125	259124
<i>SDS/MSDS Number</i>							
<i>USA</i>	44839	44831	44831	44825	44825	44815	44815
<i>Colombia</i>	—	44834	44834	44830	44830	44818	44818
<i>El Salvador</i>	—	—	—	44826	44826	—	—
Molybdenum Disulfide content %	5	5	5	3	3	—	—
Operating Temperature, °C(°F)							
Minimum ^a	-40(-40)	-26(-15)	-26(-15)	-26(-15)	-26(-15)	-26(-15)	-26(-15)
Maximum ^b	235(450)	177(350)	177(350)	177(350)	177(350)	177(350)	177(350)
Penetration, at 25°C (77°F) Worked (60 strokes)	325	325	280	325	280	325	280
Dropping Point, °C(°F)	265(509)	265(509)	265(509)	265(509)	265(509)	265(509)	265(509)
Four Ball							
Weld Point, kg	800+	500	500	500	500	500	500
Wear, Scar Diameter, mm	0.48	0.43	0.43	0.43	0.43	0.43	0.43
Timken OK Load, lb	40	70	70	70	70	75	80
Load Wear Index, kg	135	75	75	75	75	75	75
Bearing Water Washout, wt % Loss at 175°F	1.5	5	4	5	4	5	4
Water Spray-off, % at 100°F	N/A	25	15	25	15	25	15
EMCOR Dynamic Bearing Rust, 10% Synthetic Sea Water, ASTM D6138	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Lincoln Ventmeter, psig at 30 s, at							
75°F	260	250	450	250	510	250	625
30°F	400	600	1550	600	1700	600	1600
0°F	775	1720	1725	1720	1800	1720	1800
-22°F	1675	†	†	†	†	†	†

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Delo® Grease ESI® HD EP – Continued

	Delo Syn- Grease SxD 220 Moly 5% EP 1	Delo Grease ESI HD Moly 5% EP 1	Delo Grease ESI HD Moly 5% EP 2	Delo Grease ESI HD Moly 3% EP 1	Delo Grease ESI HD Moly 3% EP 2	Delo Grease ESI HD EP 1	Delo Grease ESI HD EP 2
DIN 51805, psi 68°F(20°C) 32°F(0°C) -4°F(-20°C) -22°F	0.9 1.2 2.2 3.1	0.5 2 10 38	1 4 20 max pressure	0.5 2 10 38	2 4 19 max pressure	0.5 2 10 38	2 5 22 max pressure
Copper Corrosion	1b	2b	2b	2b	2b	1b	1b
Thickener, % Type	13.0 Lithium Complex	7.0 Lithium Complex	13.0 Lithium Complex	7.0 Lithium Complex	13.0 Lithium Complex	7.0 Lithium Complex	13.0 Lithium Complex
ISO Viscosity Grade Base Oil Equivalent	220	320	320	320	320	320	320
Viscosity, Kinematic* cSt at 40°C cSt at 100°C	200 23	383 25	383 25	383 25	383 25	383 25	383 25
Viscosity, Saybolt* SUS at 100°F SUS at 210°F	1000 113	2058 124	2058 124	2058 124	2058 124	2058 124	2058 124
Viscosity Index	141	85	85	85	85	85	85
Oil Separation, wt %	1.6	2	2	2	2	2	2
Flash Point, °C(°F)*	232(450)	274(525)	274(525)	274(525)	274(525)	274(525)	274(525)
Texture	Stringy	Stringy	Stringy	Stringy	Stringy	Stringy	Stringy
Color	Gray/Black	Gray/Black	Gray/Black	Gray/ Black	Gray/ Black	Red	Red

- a 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.
- b Maximum operating temperature is the highest temperature at which the grease could be used with frequent (daily) relubrication.
- † Too stiff at this temperature to pump through device.
- * Determined on mineral oil extracted by vacuum filtration.

Minor variations in product typical test data are to be expected in normal manufacturing.

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