



Molub-Alloy™ GM 1500

Gear oil

Description

Castrol Molub-Alloy™ GM 1500 (previously called Molub-alloy™ 1500) gear oil is a severe duty, Extreme Pressure (EP) gear oil designed to meet the increasing lubrication needs and specifications of manufacturers of modern industrial and mining equipment such as walking draglines. To withstand the surging pressures and sudden reversal in speed and direction of hoist and drag gears and the great torque experienced in swing and propel gears, the ultimate in oil film forming and persistence is required. Molub-Alloy GM 1500 gear oil is a blend of high quality, petroleum base stocks and additives designed for very heavy duty and severe service. High viscosity is achieved naturally by a blend of select petroleum base stocks and not by the addition of viscosity modifiers which could shear to a lower viscosity in service. High film strength is assured by temperature stability and by the tendency for Molub-Alloy lubricating solids in stable suspension to prevent high temperatures from occurring under extreme pressures during boundary (contact) lubrication.

Extreme Pressure (EP) characteristics are derived from chemical EP additives combined with a blend of Molub- Alloy lubricating solids in very stable suspension. Molub-Alloy GM 1500 is non-corrosive to all ferrous and non-ferrous metals. The lubricating solids are selected specifically for heavy duty gear service. Rust and oxidation inhibiting characteristics are maximized for rust protection and long life of the oil. Foaming is controlled by the use of special components and inhibitors.

Application

Molub-Alloy GM 1500 is designed for service in enclosed gear systems in heavy duty industrial and mining equipment including walking draglines, shovels, and other large excavators. Gear types include helical, bevel, spiral bevel, and others subject to extreme pressures and severe shock loads. Molub-Alloy GM 1500 has also found use in replacing grease in applications where the lubricant must dwell for extended periods in small lube lines and channels in high ambient temperatures. Such applications are found in tire curing presses, and near casting moulds, ovens, and autoclaves where the possibility of grease separating and "cooking" is high. Molub-Alloy Gear Oil GM 1500 may be used in central oil or circulation systems or applied by automatic dispensing equipment.

Advantages

- Formation of a stable lubricant film on tooth flanks over a wide temperature range even at lower speed due to good viscosity/temperature characteristics.
- Boundary (contact) lubrication with Molub-Alloy lubricating solids occurs when the oil film is squeezed thin during extreme and shock loading, and at start-up or other conditions which exceed the capabilities of fluid film lubrication. Contact lubrication protects working surfaces against spalling, and minimizes wear caused by cold welding.
- Where lubricating solids protect gear surfaces from contact friction, they minimize the frictional heat which could reduce oil film strength by lowering its viscosity.
- Improved surfaces and reduced heat of friction may substantially increase the working life of both parts and lubrication oil.
- Overall savings are derived from the above and result from less labour and downtime, smoother, more efficient operation with longer parts life, and extended lubrication cycle

Typical Characteristics

Name	Method	Units	GM 1500
ISO Viscosity Grade	ASTM D2422	-	1500
AGMA Lubricant number	-	-	Between 9EP and 10EP
Density @ 15°C / 59°F	ASTM D4052 / ISO 12185	kg/m ³	940
Kinematic Viscosity @ 40°C / 104°F	ASTM D 445 / ISO 3104	mm ² /s	1460
Kinematic Viscosity @ 100°C / 212°F	ASTM D 445 / ISO 3104	mm ² /s	58
Viscosity Index	ASTM D2270 / ISO 2909	-	88
Flash Point - open cup method	ASTM D92 / ISO 2592	°C/°F	227/441
Pour Point	ASTM D97 / ISO 3016	°C/°F	-6/ 21.2
Rust test - distilled water (24 hrs)	ASTM D665A / ISO 7120	-	Pass
Copper corrosion (3hrs @ 100°C/212°F)	ASTM D130 / ISO 2160	Rating	1b
FZG Gear Scuffing test - A/ 8.3/90	ISO 14635-1	Failure Load stage	>12
Timken OK Load test	ASTM D2782	kg / lb	36/80
Four Ball Wear test - Wear Scar Diameter (40 kgf / 75°C / 1800 rpm / 1 hr)	ASTM D2266	mm	0.45
Four Ball Weld Load test - Load Wear Index	ASTM D2783	kgf	65
Four Ball Weld Load test - Weld Point	ASTM D2783	kgf	500
Four Ball Wear test - Weld Load	DIN 51350-2	N	5500
Four Ball Wear test - Wear Scar Diameter (300N / 1 hr)	DIN 51350-3B	mm	<0.40
Falex Pin & Vee Block test - Antiwear properties	ASTM D 2670-10	Teeth Wear (number)	2
Falex Pin & Vee Block test - Extreme Pressure properties	ASTM D 3233-03 (method B)	Fail Load (lbf)	2750

Subject to usual manufacturing tolerances.

Additional Information

Do not use with diatomaceous earth or any other adsorbent surface active filter media. Other types of filters require only recommended inspection and service.

This product was previously called Molub-Alloy 1500. The name was changed in 2015.

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