



MOLUB-ALLOY® 860/460 ES GREASE

Product Data Sheet

High performance Molub-Alloy 860/460 ES Greases are multi-service lubricants designed to extend the service life of bearings in heavy duty applications and at elevated temperatures. Molub-Alloy 860/460 ES Greases are intended to provide a heavier oil film for applications with excessive loading at slow speeds and when higher temperatures are sustained for longer periods of time. These greases match the rugged service requirements associated with mills producing primary metals, chemicals, cement, glass and paper.

The following performance characteristics were emphasized in the development of 860/460 ES Greases:

- **Higher viscosity base oil**, ISO VG 460, to increase the load carrying capacity;
- **Temperature stability** to withstand elevated and intermittently high temperatures (dropping point over 260°C/500°F);
- **Shear stability** to match the anticipated service life of precision antifriction bearings.

In addition, the 860/460 ES Greases resist the washing action of water and contain a combination of corrosion inhibitors.

Molub-Alloy 860/460 ES Greases are part of Castrol Performance Lubricants; Eco-Solutions™ product offering. Formulated to address environmental concerns, they are free of lead, chlorinated solvents, barium and antimony.

DESCRIPTION

Molub-Alloy 860/460-1 ES and 860/460-2 ES meet NLGI Consistency Grade No. 1 and No. 2 respectively.

The load-carrying and antiwear capabilities of 860/460 ES Greases exceed conventional complex greases. **High performance** is the result of chemical additives working synergistically with select Molub-Alloy lubricating solids which are dispersed uniformly throughout the grease. These lubricating solids offer their greatest benefit at slow speeds or when bearings must endure heavy loads and shocks. Solids also protect newly machined bearing surfaces during the critical period of "running in". Good bearing surfaces are essential for long service life.

860/460 ES Greases can maintain a high degree of mobility in the work zone of a bearing for its anticipated service life without losing its original consistency. This critical physical property is due to the use of a highly stable, advanced lithium complex thickening system and special manufacturing techniques.

Molub-Alloy 860/460 ES Greases are formulated from premium petroleum base oils, ISO VG 460 and are a part of the Molub-Alloy 860 ES series of lithium complex thickened greases. In addition to lubricating solids, these lubricants contain a combination of corrosion inhibitors specifically chosen for protection against corrosive process waters.

Still other premium components in the balanced additive package provide excellent oxidation resistance for very long service life.

TYPICAL APPLICATIONS

Castrol Industrial North America Inc.

Performance Lubricants Division

1001 West 31st Street, Downers Grove, Illinois 60515-1280

Telephone: (800) GEAR-OIL

Fax: (800) 986-6447

Molub-Alloy 860/460 ES Greases should be used when loads are heavy, temperatures are elevated (up to 232°C/450°F), and speeds are slow. 860/460 ES Greases have been used successfully in antifriction bearings and bushings; and in mill rolls and couplings. Apply 860/460 ES Greases by hand packing or with a grease gun. Due to the high viscosity base oil, which is capable of supporting very high loads at slow speeds, it is recommended that only well-designed, heavy duty central/automatic lubricating systems be used when pumping 860/460 ES Greases.

REAPPLICATION FREQUENCY- HIGH TEMPERATURE USAGE

Molub-Alloy 860/460 ES Greases are designed to extend service life in all applications. At temperatures above 121°C/250°F, regular applications of 860/460 ES must be considered.

Establish reapplication intervals by inspection. See NOTES: High Temperatures and/or slow speeds.

Generally, for continuous service at temperatures near 177°C/350°F, weekly reapplications of 860/460 ES are suggested.

As minimum ambient temperatures approach 0°C/32°F, change to 860/220-0 ES Grease, which pumps at lower temperatures.

For continuous service near 204°C/400°F, reapply 860/460 ES daily or once each shift.

MOLUB-ALLOY 860-460 ES 02-95 –R01

Formerly PDS 4133 02/95

Molub-Alloy®

Optimol®

Tribo®

Molub-Alloy 860/460 ES Greases have been used above 232°C/450°F. However, frequent reapplication of grease is necessary to prevent deterioration of the petroleum base oil. **Reapply before the grease in the bearing stiffens.**

ADVANTAGES

Molub-Alloy lubricating solids permit extending the lubrication interval while providing an extra measure of antiwear protection.

Molub-Alloy 860/460 ES Greases stay in the bearing. The grease does not thin despite prolonged shearing, nor does it melt at temperatures up to 260°C/500°F.

Molub-Alloy 860/460 ES Greases are formulated to withstand extreme pressures and heavy shock loads.

Molub-Alloy 860/460 ES Greases offer excellent oxidation resistance and resist washing out, even when exposed to the action of hot process water. 860/460 ES Greases pass (zero rating) the tough Emcor Rust Test (see TYPICAL PROPERTIES below) and can provide protection from corrosive process waters.

NOTES

For lower temperatures and/or higher speeds, a lighter base oil viscosity may be desired. 860/220 and 860/150 Greases are available with a base oil viscosity of ISO VG 220 and 150 respectively.

Molub-Alloy 860/460 ES Greases are not compatible with sodium or inorganic base grease.

NOTE: Specific terms, conditions, warranty and availability, refer to Castrol Performance Lubricants' Price list in effect at time of purchase.

TYPICAL PROPERTIES

	860/460-1 ES	860/460-2 ES
NLGI Grade	1	2
Thickener Type	Lithium Complex	Lithium Complex
Worked Penetration, ASTM D217, mm/10	310-410	265-295
Dropping Point, ASTM D2265, °C/°F	260+/500+	260+/500+
Base Fluid Properties:		
Viscosity, ASTM D445, ASTM D2161		
@ 40°C cSt	460	460
@ 100°C, cSt	28.5	28.5
@ 100°F, cSt/SUS	534/2472	534/2472
@ 210°F, cSt/SUS	30/142	30/142
Flash Point, ASTM D92, °C/°F	232/450	232/450
Pour Point, ASTM D97, °C/°F	-12/+10	-12/+10
Water Washout, ASTM D1264		
@ 79°C/175°F, % loss	4.0	4.0
Emcor Rust Test, DIN 51802, IP 220/85	No. 0 (Pass)	No. 0 (Pass)
Copper Corrosion ASTM D 4048	1 lb	1 lb
Roll Stability, ASTM D1831, % change	10	10
Timken EP Test, ASTM D2509		
OK Value, kg/lbs	22/50	22/50
Four Ball EP Test, ASTM D2596:		
Load Wear Index, kg	60	60
Weld Load, kg	500	500
Molub-Alloy Solids, Grade Classification	Multipurpose	Multipurpose

Subject to Usual Manufacturing Tolerances