

LUBE

TECHNI-GRAM



FROM:

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MOLY SUSPENSION GREATLY ENHANCES PERFORMANCE OF GEAR OILS

The ability of gears to provide power transmission comes from the meshing of opposing teeth or threads. Most gears are designed and manufactured precisely according to their intended service. In modern machinery, there is no place for a “rough” gear.

Industrial and mobile equipment gear oils in today’s market must work in much more diverse and severe conditions than in the past. The lubricants often must perform in the presence of large quantities of water, as in steel mills, or in highly contaminated environments such as mines or quarries, sustaining high loads, high speed and higher operating temperatures.

Two major trends are affecting the formulation of modern gear lubricants:

- Increased emphasis by end users on reducing costs. Therefore, they are demanding longer component and lubricant life.
- Design changes to improve gearbox efficiency. As a result, gearboxes have been down sized and operate at higher speeds and loads, resulting in higher operating temperatures. The smaller gearboxes also have smaller oil capacities, so less lubricant is available to cool the equipment and suspend containments. Design changes in mobile equipment also restrict airflow to gearboxes and differentials, so again, higher operating temperatures result.

To meet the needs of modern industrial gearboxes, gear lubricants must provide *extended durability, improved thermal stability and cleanliness, improved high-temperature EP protection, extended demulsibility life, and improved containment resistance*. More and more, customers are experiencing the increased performance benefits and added protection SWEPCO’S 203 Moly Gear Lube and 212 Moly Multi-Grade Gear Lube provide.

No matter how highly polished or machined, all surfaces remain composed of jagged peaks and valleys (asperities). In addition to the superior anti-friction/anti-wear and extreme pressure protection provided by SWEPCO Gear Oils, the Suspension Grade Molybdenum Disulfide found in SWEPCO 203 and 212 provides added protection beyond the oil film. These extremely small particles are suspended and dispersed (but not dissolved) in SWEPCO 203 and 212. The solid lubricating particles are physically attracted or trapped to the metal surfaces and burnished into a thin protective film. Because the molybdenum disulfide solid lubricating particles in this film have a laminar or layer like structure, they shear easily. Under extreme load, the stacked layers of solid lubricant shear (slide) as a deck of cards would slide easily with horizontal movement,



... to keep it running

but they are able to take considerable pressure when a straight downward force is applied. Moly powder itself has the ability to withstand up to 500,000 psi of direct pressure and load. The shearing action allows heavier loads to be carried without cold welding of asperities.

The suspension grade Molybdenum Disulfide found in SWEPCO 203 and 212 are dispersions containing billions of microscopic lubricating particles that enhance the effectiveness of SWEPCO'S Superior E P Gear Lubricants. SWEPCO'S Moly Gear Lubes constantly work to reduce friction. Less wear results, energy consumption is reduced, and load-carrying capabilities are improved.

Advantages of SWEPCO'S Moly Gear Lubes

FEATURES

They reduce friction

They increase load carrying capacity

They improve wear

They provide boundary lubrication

They withstand temperature extremes

They can provide dry film lubrication

Benefits to the End User

- Reduced energy costs
- Reduced operating temperatures
- Increased power availability
- Smooth running at slow speeds
- Prevent stick-slip action and surging
- Reduced squealing and noise
- Reduced chance of seizure, galling, fretting
- Easier disassembly

- Less scuffing
- Shorter break-in time
- Ideal for heavy duty machinery exposed to shock loading

- Extended life for components
- Reduced maintenance cost
- Longer operating time

- Protection when oil film breaks down

- Effective beyond the highest and lowest temperature limits of conventional soluble additives

- Lubricate where liquid won't remain