

LUBE

TECHNI-GRAM



LEWIS FOX
DIRECTOR OF TECHNOLOGY

FROM:

December 1999

TRENDS IN INDUSTRIAL GEAR OILS

Industrial gear oils work in much more diverse conditions and applications than automotive gear oils. 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, while sustaining high loads, speeds and operating temperatures.

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

- Increased emphasis by end users on reducing cost. Therefore, they are demanding longer lubricant life, which reduces maintenance and disposal costs.
- Design changes to improve gearbox efficiency. As a result, gearboxes have been downsized and operate at higher speeds and loads, resulting in higher operating temperatures. These smaller gearboxes also have smaller oil capacities, so less lubricant is available to cool the equipment and suspend contaminants.

To meet the needs of modern industrial gearboxes, lubricants must provide:

- Extended durability
- Improved thermal stability and cleanliness
- Improved high-temperature EP protection
- Extended demulsibility life
- Improved contaminant resistance

Because typical industrial EP gear oils generally have a much lower quantity of EP additive, they simply are not up to the task of providing protection for the increased demand modern industrial gearboxes place on lubricants. More and more industries, however, are finding the more thermal and oxidation stable, EP gear oils developed for more severe automotive and heavy equipment driveline/manual gear box applications (such as SWEPCO 200 series gear oils) to be the answer for providing superior performance and protection in even the most severe industrial gearbox applications. While industrial EP gear oils have a lower quantity of EP additive and should **never** be used in an automotive/heavy equipment applications, gear oils with proven non-aggressive EP additive chemistry and API MT-1 yellow metal compatibility can be used in both automotive/heavy equipment and industrial gear lubricant applications. This results in additional economic savings through consolidation and reduction of inventory.



... to keep it running

EP gear oils not only meeting, but exceeding, standard performance bench tests can be categorized as “Next Generation” performers for **extra durability** and **thermal stability**. Through the use of such gear oils, industrial customers can expect the following benefits:

EXTENDED GEAR AND EQUIPMENT LIFE--Less capital expense and reduction in hard part replacement costs.

LESS POWER CONSUMPTION--Users can expect a minimum of 12% reduction in amperage.

REDUCED FRICTION AND OPERATING TEMPERATURES-- Can lower operating temperatures by 25-50° F. Reduced friction also results in less energy required to operate the equipment.

NON-FOAMING-- Highly active anti-foam additive breaks up entrapped bubbles to further reduce operating temperatures and wear.

CLINGABILITY-- Adhesive/cohesive additives enables the oil to climb when it is cold and revert to the splash system when the gearbox reaches operating temperatures. Prevents dry starts and destructive metal-to-metal contact.

OXIDATION RESISTANCE-- Natural high VI paraffinic base stocks, coupled with superior oxidation inhibitors, reduce oil thickening and prevents sludge, varnish, and carbon deposits that result from oxidation.

EXTENDED SEAL LIFE-- Keeps seals soft and pliable, thus reducing real leakage.

SUPERIOR WATER SEPARATION-- Provides protective lubrication even in the presence of moisture. Conventional gear oils that easily emulsify and foam cause increased friction and heat, poor lubrication and wear.

MULTI-PURPOSE FORMULATION-- Reduces inventory and lubrication errors to save money. One type of gear lubricant may be used in differentials, transmissions and most types of industrial gearboxes.