SHELF LIFE OF LUBRICATING OILS

The performance properties of liquid lubricants (oils) will remain intact for many years provided they have been in protected storage and not exposed to severe high/low temperature cycles. Generally, the simpler the oil formulation, the longer the oil will remain satisfactory. The old 'cool dry place' term certainly applies when storing oil products.

Hydraulic Food Grade/Compressor/Turbine and General Purpose Lubricating Oils

These oils contain low but very effective additive treatments. They may be stored for 3 years under protected conditions without any significant deterioration in performance.

Engine/Motor Oils and Transmission Oils

Although these oils contain high additive contents, they are extremely stable. They may be stored for 5 years under protected conditions without any significant deterioration in performance. However, as the industry is always developing new specifications these oils may be out of date by the time they are fully used.

Industrial and Automotive Gear Oils

These highly additised formulations can occasionally exhibit some long term instability. Under protected conditions they should only be stored for 3 years.

INDUSTRIAL METALWORKING

Soluble cutting and grinding fluids

These are mineral oil, synthetic or semi-synthetic water miscible products designed for use in all water types for metal cutting and grinding operations. These products may contain bactericides and fungicides that help to prevent the growth of bacteria and mould and also extreme pressure additives for heavier duty work. Where it is desirable to be able to see the tool and machining operation, products that make clear emulsions are available.

Neat Cutting Oils

These products offer superior performance where the demands upon the lubricant cannot be met by a water miscible fluid. They cover a wide range of viscosities and light, medium and heavy duty machining operations such as cutting, drilling, broaching, deep hole boring, reaming, grinding, threading, honing and many others. These products may contain active or inactive sulphur compounds and therefore care needs to be taken to select the correct grades to ensure that staining of metal does not occur.

Forming Lubricants

These are solvent or mineral based oils and additives that are used neat or as emulsions to shape

or form all metal types during light, medium and heavy duty operations such as pressing, punching, stamping, cold-heading and drawing. They contain additives that help the forming process such as active or inactive sulphur compounds and therefore care needs to be taken when recommending products to meet the needs of the metal and the application to reduce the risk of staining.

Heat Treatment oils

Also called quenching oils, these are mineral oil based normal and accelerated speed products and water based polymer quench and induction hardening fluids that cover a wide range of heat treatment applications where metal components are immersed in a heated bath to increase the structural hardness of the metal.

Chemical Parts Wash Cleaners

These types of products can be water based or solvent based component and are used extensively throughout the metalworking industry for the cleaning and work-in-progress corrosion inhibition of all metal types. They contain surfactants or detergents and depending on the base material, either these or the solvents do the cleaning. Notice needs to be taken of the flash points when handling.

Rust Preventatives

Rust preventatives may be solvent, oil or water and emulsion-based and provide excellent water displacement properties and short, medium and long-term indoor and outdoor protection to suit a wide variety of metal types. Where metal components are to be shipped overseas a thicker film rust preventative may be applied to prevent any exposure to salt spray.

Way Lubricants

Also called slideway oils. These products contain a tacky additive to help stay in the lathe bed and hence prevent dripping of oil. They also contains "stick-slip" additives which are designed to assist with smooth operation of machine tool slideways. Can often be used as industrial gear oils and in hydraulic systems.

Storage of Metalworking Fluids

Water based products need to be stored indoors at 5 C or above with a maximum shelf life of 12-months. These products need to be protected from water entry and frost. Neat Metalworking Fluids and Way Lubricants can be delicately balanced and have a shelf of about 2 years and should be stored as per the soluble fluids. Other products generally have storage lives of 2-5 years.

GREASES

Greases are defined as solid or semi-solid materials produced by the dispersion of a thickening agent in a liquid lubricant (like adding a sponge to water).

Greases are manufactured in either a grease kettle or in a contactor. A soap-based grease uses a thickener made by reacting a metallic hydroxide with a fatty acid, which is where we get our basic types from, eg lithium soap. Non-soap greases include silica, polyurea and clay (bentone). Depending on what the grease needs to achieve, different thickener and base oils can be used.

GREASE CHARACTERISTICS

The most important factors affecting the properties and characteristics of a grease are:
- Amount and type of thickener
- Additives

A grease is expected to:
- Reduce friction and wear
- Provide corrosion protection
- Seal bearings from water and contaminants
- Resist leakage, dripping and throw off
- Resist change in structure or consistency during service
- Maintain mobility under conditions of application
- Be compatible with seals
- Tolerate or repel moisture

GREASE DEFINITIONS

Consistency – is the degree of hardness of a grease and may vary considerably with temperature. This has been classified by the National Lubricating Grease Institute (NLGI) into the following categories:

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