

LUBE

TECHNI-GRAM



FROM:

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HIGH AND LOW TEMPERATURE GREASE GUIDELINES

The National Lubricating Grease Institute was established in 1933 as a trade association. NLGI members are involved in all aspects of the lubricating grease industry, from raw materials for grease manufacturing through the finished product, including packaging. NLGI serves as a source of technological information in the field of lubricating greases. Regarding characteristics of greases in high temperatures or low temperatures, they offer the following comments:

High-Temperatures Lubrication

Greases fail more rapidly as temperature of operation increases. The most obvious reason for failure lies in the melting point of the thickener or dropping point of the grease. The latter involves a complex of melting and bleed. Evaporation may be significant at high temperatures. Oxidation also increases rapidly as temperature rises. There are useful guidelines for heat resistance of grease in service which take all these factors into consideration.

Many common mineral-oil-based greases (of adequate dropping point) will operate successfully to about 250° F (121° C). A smaller number can handle 300° F (149° C). A few mineral-oil-based greases can operate to about 350° F (177° C). As service temperature rises, frequency of lubricant addition and relubrication must increase.

In industrial service, the following may be considered reasonable relubrication intervals for rolling element bearings (assuming eight work hours per day):

180° F (82° C), 6 Months
220° F (104° C), 3 Months
300° F (149° C), 1 Month

380° F (193° C), 1 Week
460° F (238° C), 1 Day

These guidelines assume reasonable-sized bearings operating at usual speeds and loads. If speed is high, bearing large, or load severe, relubrication intervals should be even shorter. Where service is severe and/or contamination is unavoidable, relubrication is best carried out with a centralized lubrication system, and lubrication intervals may be measured in hours or minutes.



... to keep it running

Pumpability And Slumpability

In many applications, grease must be pumped ... to reservoirs, to distribution systems, or to bearings. A grease gun is a simple pumping device. Ability of a grease to be pumped (pushed) is usually limited by the capability of the product to be drawn into the pump. This characteristic is often known as slumpability or feedability. There is no standard test for slumpability.

Greases made from high-viscosity oils are poor in both slumpability and pumpability when the temperatures are low. However, texture affects slumpability. Greases which are fibrous or stringy are generally good in feedability. Greases which are buttery ... not fibrous ... may not show up well at the suction side of a pump. But at the push side of a pump, the reverse is true, and the fibrous greases are poorer than non-fibrous products.

Optimum Operating Temperature Ranges For SWEPCO Greases

<u>Product</u>	<u>Optimum Operating Temperature Range</u>
SWEPCO 101	-30° F (-34° C) ... to 500° F (260° C) – NON-MELT
SWEPCO 102	-30° F (-34° C) ... to 350° F (177° C) – NON-MELT
SWEPCO 103	-4° F (-20° C) ... to 350° F (177° C)
SWEPCO 104	-30° F (-34° C) ... to 350° F (177° C) – NON-MELT
SWEPCO 105	-4° F (-20° C) ... to 350° F (177° C)
SWEPCO 110	-25° F (-32° C) ... to 250° F (120° C)
SWEPCO 113	-25° F (-32° C) ... to 250° F (120° C)
SWEPCO 115	-0° F (-18° C) ... to 400° F (204° C)
SWEPCO 121	-30° F (-34° C) ... to 375° F (191° C) CONTINUOUS 450° F (232° C) INTERMITTENT
SWEPCO 402	-40° F (-40° C) ... to 250° F (120° C)
SWEPCO 604	-10° F (-23° C) ... to 450° F (232° C) – NON-MELT

There is often a misconception about low and high temperature operating ranges. The operating temperature of the equipment may not be the operating temperature of the bearing. Most bearings are shielded from extremely low or extremely high temperatures. **It is important to know the actual operating temperature of the bearing.**

The above are optimum operating ranges. These are not the temperatures at which the greases will pump or melt.