

LUBE

TECHNI-GRAM



FROM:

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GREASE COMPATIBILITY

Often times complaints are heard that a grease “softened and ran out” of a bearing. This may have happened soon after application. The grease is blamed for being of poor quality of “melting”, but in many instances, provided a quality product is being used, the real reason is “incompatibility”.

When greases made from different thickeners are mixed, the mixture may be poorer in service performance or physical properties than either of the component products. In explanation, when two greases of different types of soaps or gels are intermixed, the result may be a softening or loss of body of the mixed greases to a point where the mixture runs out or away from the bearing. Usually, greases of the same general type can be mixed without too much difficulty...but this is not always true of unlike soaps or gels.

While incompatibility of soaps or gels should be a concern, incompatibility is not always caused by the thickener, since each of the greases in the mixture is a complete package...thickener, fluid, and additives. Sometimes the thickener of one grease is incompatible with the fluid or the additives present in the second formulation. If the mixture proves to be significantly softer, less sheer stable, or less heat-resistant than the original grease, the mixture must be deemed incompatible. Certain thickener combinations often have been found unsatisfactory or incompatible and these are shown on the Results of Grease Incompatibility Study (Figure 1). As the study shows, there are virtually no greases that are totally compatible with others.

In most cases, this incompatibility does not mean there will be a drastic chemical reaction that could cause immediate failure of a bearing. Normally, what happens when incompatible base greases are mixed, the consistency of each is lessened or “softened”. This does mean that putting an organo clay grease behind a soap based grease, or vice versa, would cause such a reaction that all of the grease would leave the bearing cavity and leave the bearing unprotected.



... to keep it running

When recommending a grease for usage, it is desirable to have old grease removed and start with clean bearings. If this is not feasible, the new grease should be applied often enough to force out the old grease and continue until the old grease is completely flushed out or purged out. Since SWEPCO greases are sold on the basis of higher quality and the ability to extend customers' lubrication intervals, we stress the incompatibility of greases. We alert customers that normally about 2 or 3 regular greasing intervals will suffice in purging out old grease before the SWEPCO product has the full adhesion to metal qualities, or "staying power", and subsequent reduced grease consumption will be seen.

In summary, while periodic mixture of grease would not be thought to create devastating effect of immediate bearing failure, it does "dilute" the quality of the grease and interfere with its ability to provide the maximum protection and extended lube intervals, especially in the case of higher quality/extended interval capable greases such as SWEPCO.

Results of Grease Incompatibility Study

	Aluminum Complex	Barium	Calcium	Calcium 12-hydroxy	Calcium Complex	Clay	Lithium	Lithium 12-hydroxy	Lithium Complex	Polyurea
Aluminum Complex	X	I	I	C	I	I	I	I	C	I
Barium	I	X	I	C	I	I	I	I	I	I
Calcium	I	I	X	C	I	C	C	B	C	I
Calcium 12-hydroxy	C	C	C	X	B	C	C	C	C	I
Calcium Complex	I	I	I	B	X	I	I	I	C	C
Clay	I	I	C	C	I	X	I	I	I	I
Lithium	I	I	C	C	I	I	X	C	C	I
Lithium 12-hydroxy	I	I	B	C	I	I	C	X	C	I
Lithium Complex	C	I	C	C	C	I	C	C	X	I
Polyurea	I	I	I	I	C	I	I	I	I	X

B = Borderline Compatibility
 C = Compatible
 I = Incompatible

Copied from paper given by E.H. Meyers entitled "Incompatibility of Greases" at the NLGI's 49th Annual Meeting.

Figure 1