



Know grease

Frequently Asked Questions

Find answers to all your queries about grease.

- 1. Can I mix two different greases in the same bearing?
- 2. How do I know what the right grease initial fill amount, re-greasing amount, and re-greasing interval is?
- 3. My bearings are operating under heavy water exposure, and I am concerned that the grease in the bearings will be easily washed out. What should I do?
- 4. My bearings are part of a critical production equipment and I would like to ensure they operate reliably without unplanned downtime. Which grease should I consider?
- 5. How do I choose the correct grease base oil viscosity to use in my bearings?
- 6. What is the difference between the various grease thickener types? Do they perform better than the commonly available lithium greases?
- 7. I opened a fresh pail of grease and found a puddle of free oil in the grease. Should I be concerned?
- 8. What does the NLGI grade of a grease mean? Which one should I use and when?

1. Can I mix two different greases in the same bearing?

What is grease incompatibility? Mixing different greases, especially of different thickener types, could bring about chemical or structural interactions between the thickener or additive systems of the different greases. This could lead to ineffective lubrication, damaging the lubricated components or even cause equipment failure.

How do I know if my greases are incompatible? Most of the time, grease mixtures will exhibit a change in consistency relative to that of the individual pure greases. This tendency will be more pronounced as the operating temperature or the rate of shearing of the grease mixture increases. Incompatible greases may also exhibit abnormal oil separation or “bleeding” at higher temperatures.

What happens if I mix incompatible greases together? Incompatible mixing of greases in application could lead to grease or oil leakage, premature aging or insufficient oil bleed in the contacting zones. Although unlikely but not unheard of, the greases’ performance additives may act antagonistically, adversely affecting lubrication functions such as protection against friction, wear, rust or corrosion.

Below is a general guide to determining the compatibility between different thickener types.

	Aluminum Complex	Calcium Complex	Calcium Sulfonate	Lithium 12-hydroxy	Lithium Complex	Polyurea	Clay
Aluminum Complex	C	I	M	I	I	M	I
Calcium Complex	I	C	M	I	M	C	I
Calcium Sulfonate	M	M	C	M	C	I	I
Lithium 12-hydroxy	I	I	M	C	C	M	I
Lithium Complex	I	M	C	C	C	M	I
Polyurea (shear stable)	M	C	I	M	M	C	M
Clay	I	I	I	I	I	M	C

■ Completely compatible ■ Moderately compatible ■ Incompatible

What we recommend: If mixing different greases is the only option, it is recommended to run grease compatibility tests first. If deemed incompatible, purge as much as possible of the old grease, then re-grease more frequently to purge all the old grease out of the bearing.



2. How do I know what the right grease initial fill amount, re-greasing amount, and re-greasing interval is?

If available, equipment manuals and name plate specific to the equipment model should be the first point of reference.

To find out more, please contact your Mobil Serv Engineering services.

3. My bearings are operating under heavy water exposure, and I am concerned that the grease in the bearings will be easily washed out. What should I do?

Why is it a problem? Water exposure weakens the structure of some greases, increasing the likelihood of a water washout. Grease washouts are not desirable as they result in higher grease consumption to replenish the lost grease. If the replenishments are not sufficient, ineffective lubrication will result in severe wear to the bearings.

What we recommend: A grease with good adhesion and cohesion is required to operate under such conditions.

Mobil Centaur XHP™ series is suitable for high load and severe water exposure environments such as in a steel mill or paper machine equipment. It is formulated with advanced calcium sulfonate thickener technology which excels in water saturated environments, providing rust protection between long re-lubrication intervals.

Mobilgrease XHP™ series has good water washout and spray-off resistance as its highly cohesive and adhesive structure helps reduce leakage and extend re-lubrication intervals for reduced maintenance requirements

4. My bearings are part of a critical production equipment and I would like to ensure they operate reliably without unplanned downtime. Which grease should I consider?

Compared to mineral greases, synthetic greases should be considered for more demanding applications or when reliable lubricating performances are critical. Synthetic greases have lower traction properties, better resistance to thermal and oxidative degradation, and a wider range of operating temperatures.

What we recommend:

High temperature synthetic grease: **Mobil SHC Polyrex™ series**

Multi-purpose synthetic grease: **Mobilth SHC™ series**

5. How do I choose the correct grease base oil viscosity to use in my bearings?

If available, equipment manuals and name plate specific to the equipment model should be the first point of reference.





In other cases, EHL (elastohydrodynamic) calculation is required. Calculation of EHL takes into account bearing size, speed and operating temperature to recommend the most suitable base oil viscosity for your specific bearing.

To find out more, please contact your Mobil Serv Engineering services.



6. What is the difference between the various grease thickener types? Do they perform better than the commonly available lithium greases?

These are the various types of thickeners available in the market for greases:

	Lithium	Lithium Complex	Polyurea	Calcium Sulfonate	Organo Clay	Alumumium Complex
 High temperature	● ●	● ● ●	● ● ● ●	● ● ●	● ● ● ●	● ● ● ●
 Water resistance	● ●	● ● ●	● ● ● ●	● ● ● ●	● ● ●	● ● ● ●
 Oxidation stability	● ●	● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
 Pumpability	● ● ●	● ● ●	● ● ● ●	● ● ●	● ●	● ●

Different thickeners provide each grease with unique characteristics and properties, allowing certain greases to perform better in certain applications than others.

What we recommend:

Lithium Complex thickeners for multipurpose applications under moderate to high temperatures and loads: found in **Mobilgrease XHP™ series**, **Mobilith SHC™ series**, and **Mobil Unirex™ series**

Polyurea thickener for high temperature and long-life applications: found in **Mobil SHC Polyrex™ series**, **Mobil Polyrex™ EM series**

Organo Clay thickener for extremely high temperature applications: found in **Mobiltemp SHC™ series**

Calcium sulfonate thickener for high water exposure and high load applications found in **Mobil Centaur XHP™ series**

Aluminum Complex thickener for food grade applications: found in **Mobilgrease™ FM series**



7. I opened a fresh pail of grease and found a puddle of free oil in the grease. Should I be concerned?

Why does this happen? The puddles of oil are formed due to a phenomenon called static oil bleed. Grease can be thought of as a sponge saturated with lubricating oil, which must be released from the thickening matrix to provide necessary lubrication. Even though some oil release occur during lubrication, oil release can also occur during storage in slightly stressed environments, where temperature changes or vibration could be present.

Our recommendation:

- The grease is still suitable for use if it fulfils the following conditions:
- The amount of oil is little, covering only low spots in the surface of the grease.
 - The grease readily absorbs the oil upon stirring.

8. What does the NLGI grade of a grease mean? Which one should I use and when?

The NLGI consistency number, or the NLGI grade, is a standard classification scale established by the National Lubricating Grease Institute (NLGI) to specify how rigid or fluid a grease is on the basis of ASTM worked penetration. It has proven to be adequate in specifying the preferred consistency of greases for most applications. Grades range from fluid to rigid in the order: 000, 00, 0, 1, 2, 3, 4, 5, 6.

NLGI Grade	ASTM Worked Penetration at 25°C	Consistency	Common Applications
000	445-475	Semi-Fluid	Gearboxes, open gears and wire ropes
00	400-430	Semi-Fluid	
0	355-385	Very Soft	Centralized grease lubrication systems
1	310-340	Soft	
2	265-295	Medium Soft	General purpose
3	220-250	Firm	General purpose, vertically mounted and higher speed bearings
4	175-205	Very Firm	
5	130-160	Hard	
6	85-115	Very Hard	