

# 5 Easy Ways to Simplify Your Reliability Program

Shell Lubricants



Proper lubrication is key to equipment reliability. A successful lubrication program ensures not only that the right lubricant is used in each application, but also that each lubricant is kept free of contamination and is delivered in the right amount, with the right frequency, and at the proper temperature. Sometimes the hardest part of a successful program is in executing the plan, rather than simply specifying the right thing to do. Below are five tips to simplify your lubrication program, which can make your reliability program easier to implement.

## 1. CONSOLIDATE TO A SINGLE HYDRAULIC OIL

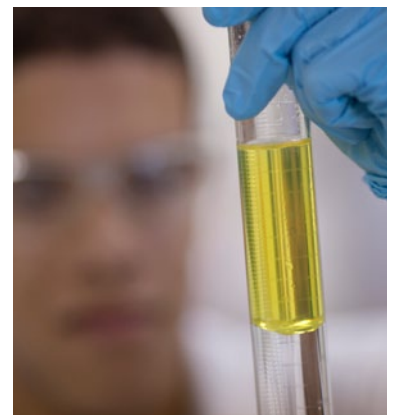
Many plants use multiple viscosity grades of hydraulic oil, and in many instances this is unnecessary. Consolidating to one hydraulic oil can often be achieved through the use of good temperature controls, or through the use of a multi-grade lubricant. While there are many factors to consider, two important criteria are the viscosity of the oil at operating conditions and the viscosity of the oil at cold startup.

Consider a pump whose manual recommends an operating viscosity of 15-35 cSt. A typical ISO VG 46 oil would meet this operating range from 115°F to 150°F, while a typical ISO VG 68 oil would meet this operating range from 130°F to 170°F. A plant that has temperature set points between 130°F and 150°F could operate successfully with either ISO VG 46 or ISO VG 68 oil. And the range of these set points will be even larger if a multi-grade hydraulic oil is used.

Similarly, the cold start conditions must be reviewed. Suppose the manual calls for a maximum cold-start viscosity of 600 cSt. If the equipment is outside, both oils would exceed this mark in winter (i.e. freezing) conditions, and therefore a heater would be required for cold starts. With a properly working heater, both oils would meet the cold-start requirements. Similarly, if the hydraulic system is inside a building that never reaches freezing temperatures, then cold-start challenges do not exist. Consolidation of oils is possible in either case.

## 2. USE LITHIUM COMPLEX INSTEAD OF LITHIUM SOAP GREASES

Lithium complex greases have many advantages over their lithium soap counterparts. For example, lithium complex greases have better mechanical stability, which means the grease will retain its consistency longer than lithium soap greases in service. This not only offers better protection for bearings, it also allows for the potential to extend re-greasing intervals or to reduce grease usage. Other advantages of lithium complex over lithium soap greases include higher operating temperature ranges and improved water washout properties. The difference in price between a lithium complex grease and a similar lithium soap grease is negligible compared to the value of these benefits.





### 3. EXTEND GEAR OIL DRAIN INTERVALS WITH SYNTHETICS

Changing oil in a gearbox comes with a lot of hidden costs. For example, the time needed to complete the job is often more costly than the price of the oil itself. It usually takes the same amount of time to lockout a piece of equipment whether a gearbox holds 1 gallon, 10 gallons or 100 gallons of oil. By upgrading to an oil with longer life, such as a full synthetic oil, a plant that extends oil drain intervals will greatly reduce the amount of money spent executing the “routine” tasks of these work orders. Gear oil that is kept clean and cool will last for many years of service, even in highly loaded gearboxes in 24/7 operation. Of course, if the equipment is under warranty, the drain intervals recommended by the OEM should be followed.

### 4. SELECT THE RIGHT LUBRICANT FOR GREASED COUPLINGS

Couplings can be a demanding application. The combination of high centrifugal force and heavy load means couplings run under tough conditions. While not all couplings are lubricated, those that are may require a specialty grease designed specifically for couplings. Multipurpose greases are often not rugged enough to protect the couplings, as their base oil is too thin, and their thickener and oil can separate when run in a coupling. If the couplings in your plant require re-greasing more than once a year, or if average coupling life is less than 5 years, there’s a good chance they are not being properly lubricated. Additionally, if the lubricant is “flung out” even when seals are in good condition, then an improper grease may have been used.

### 5. OPERATE PUMPS WITH AN OIL ALREADY ON SITE

Most process pump bearings operate in the hydrodynamic lubrication regime. This means that pump bearings can run successfully on a wide variety of oils so long as the correct viscosity is chosen. For example, consider a water pump that requires an ISO VG 68 oil. This pump could be installed in a wide variety of facilities – for example in a power plant, or a quarry, or a manufacturing plant. Each facility has the luxury of using an oil that is already used on site. The power plant could use an ISO VG 68 turbine oil. The quarry could use an ISO VG 68 hydraulic oil. And the manufacturing plant could use an ISO VG 68 compressor oil. Pumps, as well as other equipment that operate in hydrodynamic lubrication conditions, are excellent opportunities for lubricant consolidation.

#### Patrick Odneal

Technical Advisor  
Shell Lubricants

### FOR MORE INFORMATION, CONTACT US

Shell Lubricants’ Technical Information Center: **800.237-8645**

**[Shelltechnical-us@shell.com](mailto:Shelltechnical-us@shell.com)**

