

MAINTENANCE TECHNOLOGY

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Take the Plunge:

Reduce Your Lube Inventory

Optimize the number of lubricants your site stocks by eliminating redundancies and consolidating specifications.

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Managing Editor

HOW MANY DIFFERENT lubricants does your site use? Is it 10, 20, 30, or more than 100? While the actual number of required products varies significantly for different types of plants, more than 30 is probably too many.

According to Jarrod Potteiger of Des-Case, (descase.com, Goodlettsville, TN), using too many lubricants typically results from following OEM specifications to the letter. The manager of Educational Services for Des-Case, Potteiger noted that some OEMs specify just one or maybe only a few lubricants for an application, which leads cautious plant personnel to seek additional products. Over time, this practice can result in an inventory with dozens of products that are used in only one application. Stocking superfluous products, in turn, results in excessive shelf time, high costs, and an increased likelihood of cross-contamination. These are just a few reasons to take a close look at the various lubricants in your storerooms and identify opportunities for consolidation.

Why might an operation have more lube products in inventory than it needs? Potteiger points to a lack of formulation knowledge. “Many in the maintenance world,” he explained, “don’t understand which characteristics of a lubricant make it appropriate for a certain application.”

For the most part, all major lubricant manufacturers make the same types of products. This doesn’t mean they are all the same, or offer the same level of performance, but they all make an appropriate product for the vast majority of your industrial

equipment. Potteiger offered the following details of a typical consolidation process.

Oils

The primary components of an industrial lubricating oil are the base stock (base oil) and the additive system (package).

The base stock has two specifications: type of oil and viscosity grade. Although there are several different types of base stocks, most applications use mineral oil.

Mineral oil comes in three different API (American Petroleum Institute) base-oil groups, while most synthetics come in only one. When specifying lubricants (or interpreting lube specifications), it’s important to identify the API base-oil group or a particular type of synthetic.

The viscosity grade should also be specified using the ISO viscosity grading system. This system is now the standard convention for industrial lubricating oils. If an OEM uses a different system, that specification can be easily converted to an ISO grade using a conversion chart or by contacting your lubricant supplier. Using these three attributes—base oil type, viscosity grade, and additive system—we can translate most oil specifications to a generic format that helps avoid redundancies and additions of new lubricants to the inventory.

There are basically four types of additive packages, leading to products that mostly fall into four main categories:

- R&O (rust- and oxidation-inhibited) oils that are commonly

used in turbines and other applications with high-speed plain bearings

- AW (anti-wear) oils for hydraulics and anti-friction bearings
- EP (extreme pressure) lubricants for gears and slow-speed bearings
- Compounded oils used in worm gears and steam cylinders.

While there are other types and variations of industrial lubricating oils, most applications require only a single product from one of these categories.

Greases

Lubricating greases are somewhat more complicated than oils, but still fairly simple. In addition to having properties similar to those of lubricating oils, industrial grease products incorporate thickeners. A good grease specification should include base-oil type, viscosity grade, additive-system type, thickener type, and the NLGI (National Lubricating Grease Institute) grade that describes grease consistency.

Using base oil type, viscosity grade, type of additive system, and, in the case of grease, thickener type and NLGI consistency grade, we can translate most lubricant specifications to a generic format that helps minimize or eliminate existing redundancies in inventories and the temptation to add new ones.

Consolidation phase 1: Identification

The first step to optimizing the number of lubricants in your plant is to make a list of all the products you currently use and convert them to a generic description. This generic nomenclature should be used to identify lubricants in inventory and for the machine-lubricant specifications themselves. Not only will this identify redundant products, it will also make it easier to switch brands or accommodate product name changes without altering PM documentation or lube-identification tags on the equipment.

As an example, consider Product A, a well-known synthetic lubricant that might be the only product specified for a certain application. Unless users were well versed in this product line, they wouldn't know what type of lubricant Product A is. By reviewing its product data sheet, they can extract the most important information. The following generic-coded identification system makes the specification very clear:

*[ISO VG 68] - [PAO] - [AW]
[ISO Viscosity Grade] - [Base Oil Type] -
[Lubricant or Additive System Type]*

By converting product names to a generic code, lubricant



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specification and identification are simplified. When this process is completed for the whole list of a site's lubricants, it is common to see multiple products that fit the same specification.

The next step is to choose one of those products from your primary supplier and convert the others to it. As previously stated, there are some exceptions where a particular product might be required, but for the vast majority of applications, any lubricant that meets those specs should perform well. In addition to reducing the number of products in inventory, this will allow most to consolidate to a single brand or supplier.

For many sites, grease consolidation is also a big opportunity. In the average lube room many of the greases fit the same specs in the ways that matter. As with all lubricants the most important part of the spec is viscosity, which should be selected based on the speed of the application. Start by converting your existing products to the generic format in the same manner as oil. In

this case, you will need to add the thickener type and NLGI grade. Following is an example of this conversion for Product B, a well-known grease. The commercial name of this product doesn't really give a lot of information about what it is. Again, if we just look at the product data sheet, we'll have all the information we need.

*[ISO VG 220] - [M] - [EP] - [Lithium Complex] - [2]
[ISO Viscosity Grade] - [Base Oil Type] -
[Additive System Type] - [Thickener] - [NLGI grade]*

A typical plant could have half a dozen products that match (or come close to) this description. One of the problems with grease is that there may be multiple products with similar oils but different thickeners. If the thickener type is to be changed, users must investigate the compatibility of the products in question. By consolidating greases, most plants find they need only two or three products, not counting coupling grease.

Consolidation phase 2: Technical

The first phase of consolidation involves eliminating redundant lubricants through the use of a single product for each generic oil or grease type at your site. The next step (phase 2) is to actually consolidate specifications.

It's not unusual to find a plant using three different types of hydraulic oil, but most hydraulic systems will operate normally on the same product. Most machines can use more than just one lubricant. For example, a reducer that uses ISO 220 EP

could probably also use 320 or 150. If a site were to have 40 gearboxes using 220 and five using 320, it would probably make sense to investigate the possibility of using 220 for all of them.

When it comes to pumps, one manufacturer of ANSI units recommends ISO 46 and another recommends ISO 68, yet their pumps are functionally the same. The truth is, either product could be used. The OEMs' different recommendations are just different opinions as to what is optimum.

There's no need to go overboard with technical consolidations. A good way to begin is with low-use products. If your site uses 30 different lubricants, chances are, some of them are only used in a few places and should be considered candidates for consolidation.

Moving forward

If you and others at your site are uncomfortable making lubricant-consolidation decisions, enlist the help of a consultant or a technical resource from your lubricant supplier. "Any deviations from OEM recommendations," Potteiger cautioned, "should be considered from a systematic perspective and approved by the OEM and/or the lubricant manufacturer."

Although lubricant consolidation is usually not the biggest opportunity for improvement in a precision-lubrication program, Potteiger said it offers substantial value. By eliminating redundancies and low-volume items, you can store less and buy fewer products in larger amounts, an approach that

often reduces the price. A site can also consolidate products to a single source, which streamlines purchasing and increases leverage with the supplier. Finally, if you are considering updating your lubricant storage and handling facilities, lubricant consolidation will keep you from buying equipment you may not need.

Remember that the best way to feel confident about consolidating your lubricants is to become educated. Multiple sources offer training in accordance with ICML (International Council for Machinery Lubrication) certification guidelines. **MT**

For additional details on this topic and other lubrication best practices, visit descase.com.

Editor's Note: Additional issues related to lubricant-consolidation efforts are covered in Ken Bannister's June 2017 article on recycling and disposing of old oil on p. 38.

LEARN MORE

For more information, see:

- ▶ [American Petroleum Institute \(api.org\)](http://api.org)
- ▶ [National Lubricating Grease Institute \(nlgi.org\)](http://nlgi.org)
- ▶ [International Council of Machinery Lubrication \(icmlonline.com\)](http://icmlonline.com)
- ▶ [Society of Tribologists and Lubrication Engineers \(stle.org\)](http://stle.org)



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