

# Keep your new oil clean

Lubricant storage and handling tips for world-class contamination control

By Jarrod Potteiger, CMRP, Des-Case Corp.

**The methods by** which lubricants are stored, transferred and applied to machines play a large role in determining the success of a lubrication program. If you start out with contaminated oil, you will never achieve cleanliness targets for most machines. Implementing a world-class lubrication program is a sizable undertaking, but storage and handling is one area in which you can affect the quality of lubrication for the whole plant in one stroke.

With few exceptions, new lubricants are unsuitably dirty for most applications. It is therefore imperative that new oil be properly filtered before it is installed for use. A new drum of lubricating oil will typically have a particle count of approximately 19/16/13 or higher. That means that every cubic centimeter of oil in the drum contains between 2,500 and 5,000 particles that are at least 4 microns in diameter – about 1 billion particles for the whole drum. Because particle contamination is a leading cause of machine wear, then, there is a compelling case to be made for filtering “new” oil.

## STEP 1: GET IT CLEAN

The first step in ensuring the cleanliness of new oil is to filter the oil to an acceptable level. The technique used to filter the new oil depends on the oil’s method of delivery. If it comes in drums, each drum can be filtered using portable compact filtration units (Figure 1). If the volume is sufficiently large, the oil can be filtered as it is transferred.

Another popular technique, which covers a wider range of storage and handling issues, involves the use of a comprehensive lubricant management system (Figure 2). These systems can be configured with a wide range of options, including separate pumps and filters for each lubricant; high-quality desiccant breathers to prevent subsequent contamination to the fluid; fittings and spigots that minimize contamination; and even flowmeters to measure and track the amount of oil dispensed.



### COMPACT FILTRATION

**Figure 1.** Portable filtration units can be used to filter oil that is delivered in drums.

Source: Des-Case Corp.



### COMPREHENSIVE SYSTEM

**Figure 2.** A comprehensive lubricant management system can include separate pumps and filters for each lubricant as well as options such as desiccant breathers and flowmeters.

Source: Des-Case Corp.



#### DEEP BREATHING

**Figure 3.** The best way to prevent dirt and moisture from entering a tank or drum is to use a high-quality desiccant breather.

Systems like these allow staff to easily clean new oil, keep it clean, prevent cross-contamination, and track lubricant consumption by product type without having to engineer the process from scratch.

#### STEP 2: GET IT CLEAN

Keeping oil clean is not difficult if you use the right tools. It certainly helps to have an enclosed storage area with climate control, but this setup isn't essential. Common-sense measures like good housekeeping, wiping fittings, and using dust covers can go a long way toward keeping dirt out of stored lubricants. The best way to prevent dirt and moisture from entering a tank or drum, however, is to use a high-quality desiccant breather (Figure 3).

Remember, when you remove 5 gallons of oil from a drum, you pull in 5 gallons of air. If that air is not clean and dry, neither will the oil be.

#### STEP 3: TRANSFER IT CLEANLY

It really doesn't matter how well you filter new oil if you dispense it into a dirty container. Several acceptable options exist for delivering oil to machinery, and some are better than others. For large and moderate-size systems, the best method is usually to pump oil directly into the

sump from a drum or a tote using a filter cart (Figure 4). Portable filter carts are one of the most versatile and effective tools available for lubricant transfers and decontamination. When using filter carts, make sure you use the right fittings on the equipment sumps to make the fluid transfer or decontamination efficient and effective.

Additionally, consider using units that are dedicated to specific oil types to prevent cross-contamination of lubricants and avoid the labor-intensive process of flushing carts to switch products. Some manufacturers allow you to color-code your filtration unit to help identify which cart should be used with a particular lubricant. As a side benefit, most users find that performing an oil change with a filter cart only takes about half the time as performing the job with conventional methods.

Finally, for those applications with small sumps, oil transfer containers are acceptable as long as they meet certain criteria. A good oil transfer container should be plastic, sealable, and color-coded or marked for product type, and it must be cleaned on a regular basis. The container also should have an opening large enough to allow the inside of the container to be effectively cleaned. When using top-off containers, remember to avoid funnels whenever possible. Many of the new containers utilize hand-pumps that eliminate the need for funnels.



#### PORTABLE & VERSATILE

**Figure 4.** Portable filter carts are one of the most versatile and effective tools available for lubricant transfers and decontamination.

World-class lubrication cannot happen in the absence of good lubricant handling practices. All good storage and handling policies or systems have several common elements: good filtration, high-quality breathers, filter carts, and a highly conspicuous tagging or color coding system to avoid cross-contamination of products. When these four items are addressed, the majority of the work is done. The rest is just fine-tuning. ☺

Jarrod Potteiger is education services manager at Des-Case Corp. Prior to joining Des-Case, he was a director of services for Noria Corp. He holds a bachelor of science degree in chemical engineering from the University of South Alabama and is a



certified maintenance and reliability professional (CMRP) from the Society for Maintenance and Reliability Professionals (SMRP). Contact him at [jarrod.potteiger@descase.com](mailto:jarrod.potteiger@descase.com).