

TECHNI/TIPS

A Publication of the Lubrication Engineers Technical Department

LEADERS IN LUBRICANTS

NUMBER 107

LUBRICANT HANDLING AND STORAGE

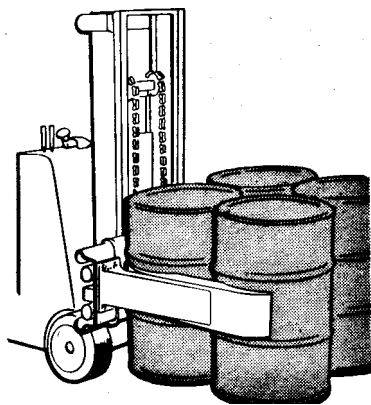
The proper handling and storage of lubricating oils and greases is very important to their life. These products are formulated for specific applications, and contamination or deterioration can result from improper handling or storage. The end result of this could be inadequate lubrication and machine failure. Some common causes of lubricant contamination and deterioration are:

- Damaged containers
- Moisture condensation seeping into containers
- Dirty dispensing equipment
- Poor storage practices
- Exposure to extremes of hot or cold temperature

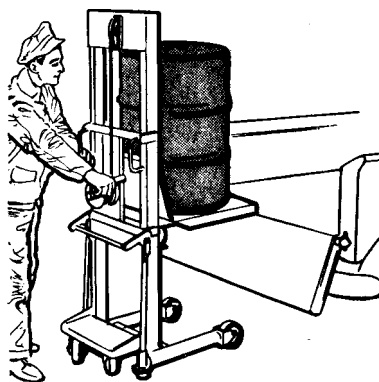
The proper handling and storage practices can reduce contamination and deterioration of lubricants. This reduction in contamination of lubricants will help the LE customers reduce equipment problems that cause downtime due to inadequate lubrication from a contaminated lubricant.

UNLOADING

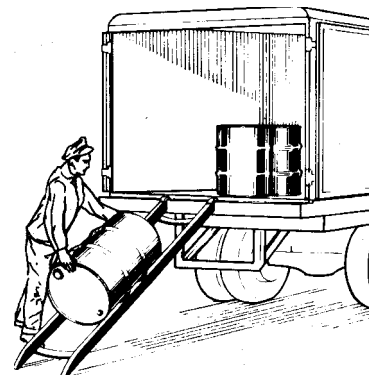
The proper handling and storage of lubricants begins with the correct unloading procedure. Damage to the lubricant containers and injury to the personnel handling them can be prevented if correct unloading procedures are used. If containers are palletized, a forklift should be used to unload the lubricants from the shipping vehicle. For drums not shipped on pallets, special drum handling attachments for forklifts should be used to remove the drums from the trucks. Many styles of drum handling equipment are available, both for forklifts and for manually operated dollies and hand trucks. Simple techniques such as wooden skids can also be used to safely remove containers from delivery trucks. See Fig. 1, 2, & 3.



LIFT TRUCK FOR HANDLING DRUMS - The hydraulically actuated arms on this truck will clamp and lift four drums. Other models are available that will clamp one or two drums at a time and rotators can be added to permit inverting the drums.



HAND WINCH HOISTER - A simple hoister of this type can be used to lower a drum to ground level from a truck bed. A floor lock holds the hoister in position while the drum is being loaded or lowered, and the casters permit moving for short distances.



DRUM SKID - Drums can be unloaded from trucks or freight cars by sliding them down a wooden or metal skid. The skid must be securely positioned to prevent accidents.

Soon after unloading, the lubricant drums should be moved to a designated storage area. This is best accomplished with a forklift, with drums secured either on pallets or held by the special drum handling equipment. If the floor or ground surface between the unloading and storage areas is suitable and smooth enough, the drums can be rolled to the storage area. The drum's hoops will protect it from damage during this process; however, care must be taken to avoid rolling the drum over sharp rocks or other objects that might puncture the drum. Smaller containers of lubricant such as 50 lb. pails can be handled by hand without damaging them.

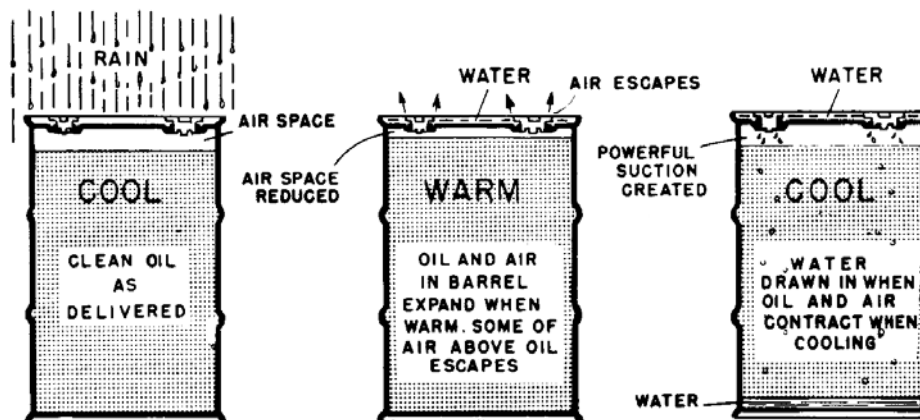
OUTDOOR STORAGE

Storing lubricants outdoors is not a preferred practice. There are many disadvantages to outdoor storage. When drums are stored outside, the weather and elements can fade important drum markings and labels. The drums are also subject to rusting, which can obliterate the drum markings. If the drums have weathered severely enough that the product inside cannot be identified, this can lead to using the incorrect lubricant in a particular piece of equipment and possibly damaging that equipment.

The effects of changing temperature on lubricant containers can be seen in several ways.

- Alternating periods of extreme hot and cold can cause the metal of a drum to expand and contract. This expansion and contraction can cause the seams of a drum to weaken. As a result, the drums may begin to leak and lubricant may be lost.
- If water is allowed to accumulate on the top of a drum, temperature changes - alternating heating and cooling - causes a vacuum, which can cause moist air to be sucked into the drum vapor space. As drum vapor space increases, this effect can be more pronounced. This can happen even if a drum is "sealed." See Fig. 4. In addition to contaminating the oil, this condensation can rust the drum. This rust then becomes another contaminant inside the drum.
- Temperature changes can also affect the physical properties of some lubricants, which would tend to make them less useful than their original intent. The mere fact that extreme cold may cause the need to heat lubricants can cause a problem. If the lubricant is overheated, this may cause further deterioration of the lubricant or its components.

Fig. 4



As we have said, outdoor storage is not the most desirable practice. Therefore, we do not recommend leaving drums outside and unprotected. However, if lubricants must be stored outside, certain precautions can be taken to help minimize the undesirable effect of outdoor storage. When stored outdoors, drums should always be covered with a shelter or at least a plastic drop cloth to protect the drums from rain and other sources of water. The preferred position for outdoor storage is with the drums on their sides and bungs approximately horizontal. In this position, the bungs are submerged by the contents of the drums, and cannot breathe moisture and water cannot collect inside. **See Fig. 5.** This also prevents water from collecting on tops of the drums. Drums should be stored on racks or at least on blocks several inches above the ground, to prevent additional moisture damage. If it is impractical to store drums on their sides, then they should be tilted by the use of blocks with the bungs parallel to the blocks to keep water away from the bung opening. This is also done to prevent the possibility of moisture being sucked into the drums through the bungs. **See Fig. 6.**

If a drum stored outdoors is to be opened, the bung and chime areas on top should be cleaned to prevent rust, scale and dirt from falling into the drum as it is opened. This will help eliminate contamination of the contents.

Fig. 5

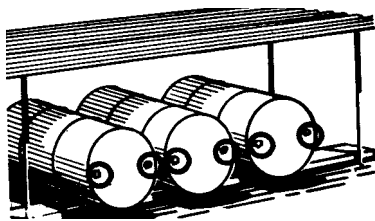
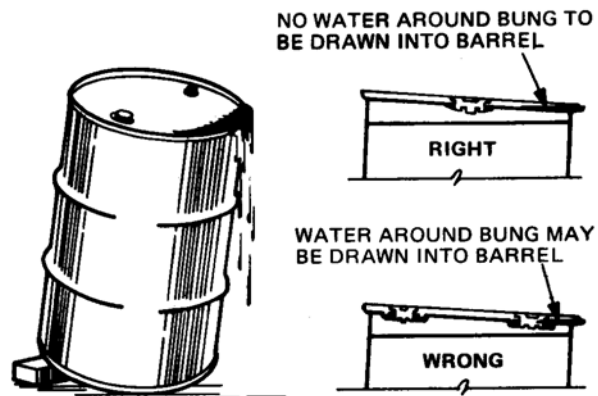


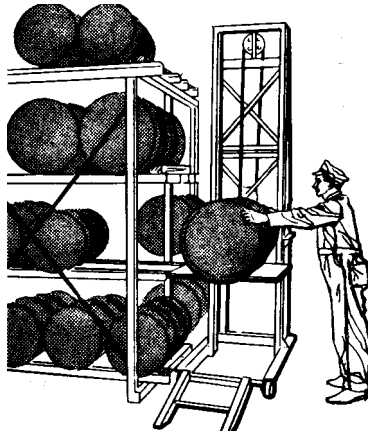
Fig 6



INDOOR STORAGE

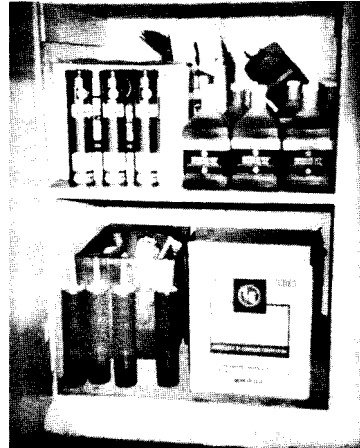
The recommended method of storing lubricants is indoors in a designated oil area or an oil house. This is also a good method of consolidating oil storage, which will save considerable time in handling as well as reduce unnecessary product inventory. An oil house or indoor storage facility should have racks and shelving that allow for adequate protection of containers as well as ease of placement and removal. Many kinds of racks and shelves are available specifically for drum storage. **See Fig. 7.** The efficient use of an oil storage area or oil house will also allow better stock rotation. Access to the older stocks should always be open so that the older lubricants will be used first. The First In, First Out (FIFO) method of inventory control will eliminate the risk of deterioration caused by excessive storage period.

Fig. 7



STORAGE RACKS-Racks of this type can be shop built or obtained commercially in various heights.

Fig. 8



STORAGE LOCKER-Adequate space is provided for the lubricant. The locker should be equipped with top and bottom ventilation to dissipate fumes and vapors. Where flammables are to be stored in the locker, a safety locker of approved design must be used.

Even when stored indoors, contamination can occur when transferring the lubricants to the various pieces of dispensing equipment or when adding to the machine to be lubricated. Simple precautions can be used to eliminate this source of contamination. Pumps, funnels, oil cans, hoses, grease guns and other dispensing equipment should be kept clean and stored in a closed vented cabinet or covered when not in use. **See Fig. 8.** When adding oil to equipment, do so in a manner that will not add dirt to the system. Always clean the top of the reservoir and around the filler cap before removing the cap. It is also good practice to add the oil through a cloth or metal screen to prevent the accidental entry of dirt into the reservoir. When greasing, the grease fitting should be cleaned before connecting the grease gun. This will prevent the introduction of dirt into the bearing with the grease.

Proper handling and storage of lubricants can be of great benefit to the customer. Contaminated lubricants can be a major cause of equipment failure. The resulting downtime for repairs is very costly. A small amount of effort spent in organizing oil and grease stocks and making sure that they are handled and stored properly will save time and money by increasing production and reducing maintenance costs.

LI20107
REV. 08-98



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