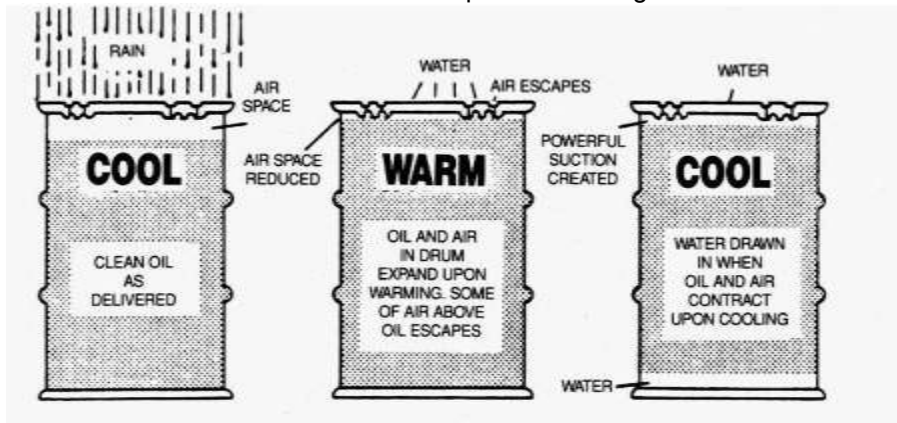




CITGO Technical Bulletin Storage of Lubricant Products

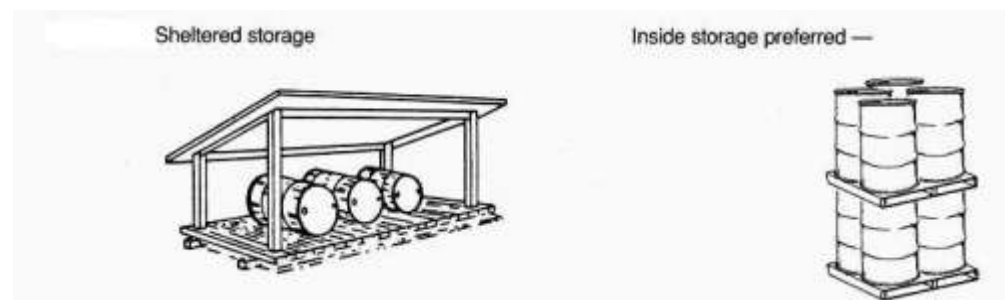
Water contamination of lubricant products due to improper storage of drums and other containers results in major problems. To combat this problem, which causes down-time with accompanying production losses and many hours of investigation and frustration, the following information on proper storage procedures is provided.

CAUSES OF CONTAMINATION – When drums of petroleum products are stored outdoors with the bung end up, rain or snow collects and is retained inside the chimes or rim. Moisture eventually gets into the drum, even though the bungs are apparently well sealed, through expansion and contraction of contents with temperature change. This is illustrated as follows:



CORRECT STORAGE – It is highly recommended that drums and other containers be stored inside. If drums must be temporarily stored outside, several procedures may be followed to prevent water contamination.

1. A shelter (see sketch below) is desirable. Drums should be stored on their sides with the bungs in the position shown. This will provide bungs covered with oil and prevent air entrainment through "breathing."



2. Low density polyethylene drum protector lids are currently available for use where there is no alternative to outside storage. These lids, however, must be properly applied and maintained to prevent water leakage to bung.

One supplier of lids is Hedwin Company, Phone 800-638-1012 www.hedwin.com or search web for “drum protector lids”

Use of loose fitting lids should be avoided.



DETECTION OF MOISTURE – In order to detect water which may have entered drums the following suggestion is provided:

Draw a sample of non-emulsifiable oil from the bottom of the drum or other container with a sample thief or tube. Observe the sample for physical presence of water. Water droplets or cloudiness of the product can indicate excessive quantities of water are present. Place several drops of the sample on a hot plate at high temperature. A cracking sound indicates the presence of moisture or water entrainment.

ADDITIONAL STORAGE PRECAUTIONS – Avoid long-term storage. Even properly stored product can accumulate some moisture due to water vapor in air which enters the drum during breathing (especially in areas where high humidity is common).

Avoid storage of fuels, solvents or lubricants in areas of excessive heat or near heaters, ovens, etc.

Maintain all water-containing products, including emulsifiable cutting oils, fire resistant fluids and some products containing fatty oils such as cylinder oils and many cutting oils at temperatures above freezing to prevent separation of component.

