



# Lubrication

Storage and handling

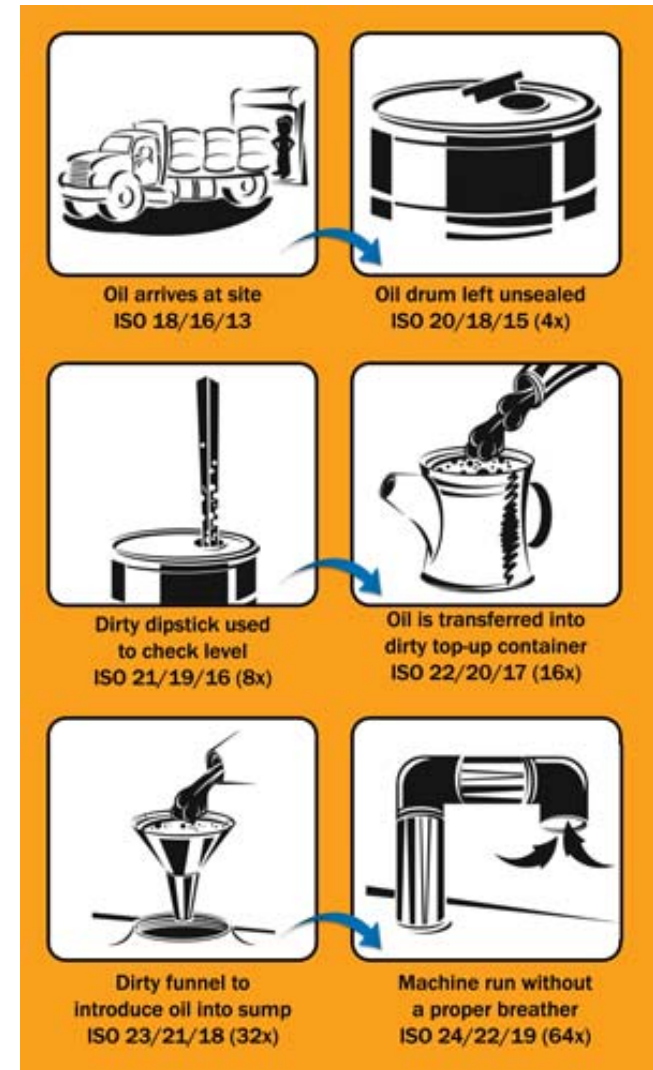
# Objective

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- To get an overview about the proper storage and handling of lubricants and hydraulic oil
- And to know the reasons for it

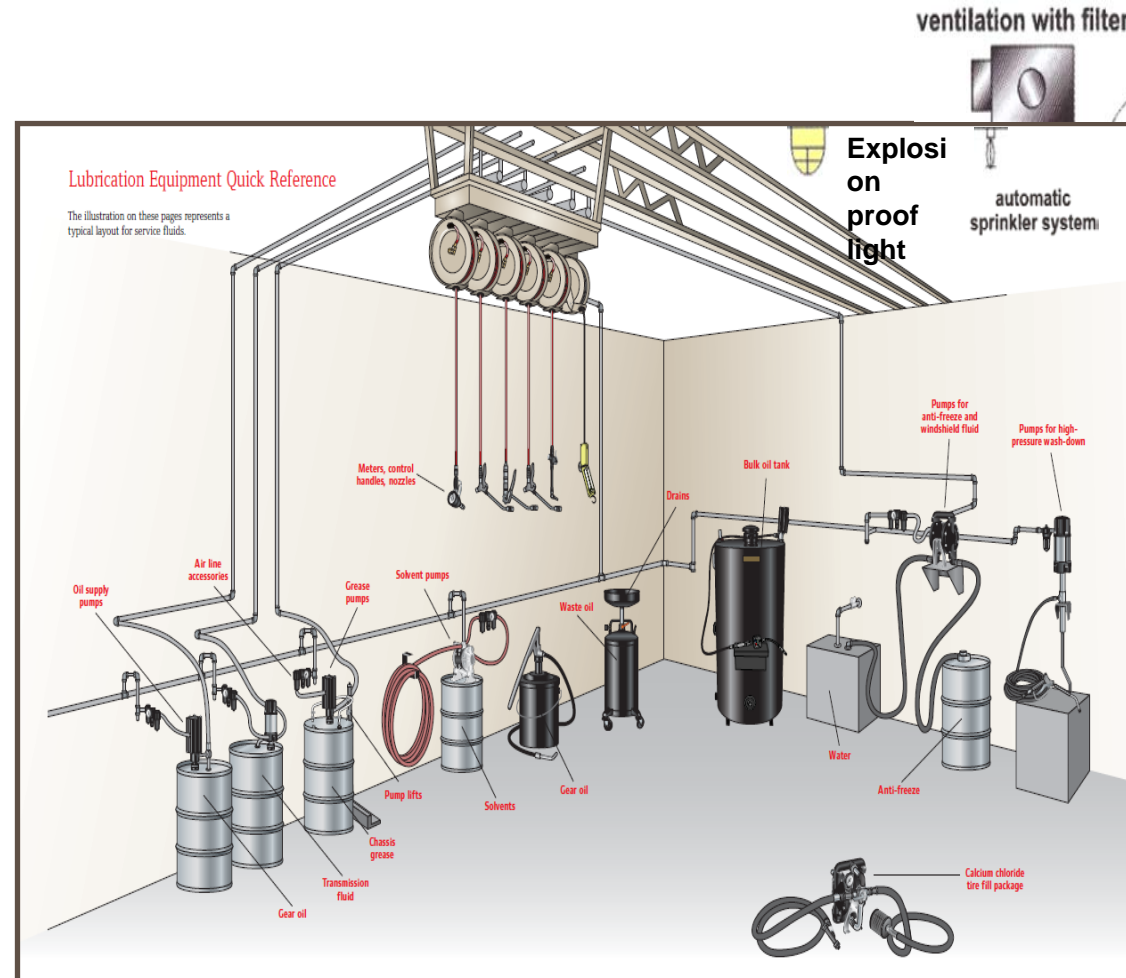
# How to lubrikill your machines

- Dirt contamination
- Mixing of products
- High temperature
- Oxidation by open containers
- Too long storage time



# Example for Oil room

- Safety first
  - Specific OH&S rules to be displayed
  - Smoking and eating must be prohibited in this area
  - Risk of fire and other environment hazard to be considered in layout
  - Fire extinguishers must be available
- Constant temperature and good ventilation (overpressure)
- The store must be dry and dust free
- Drop oil containers avoid oil spillages
- Have devices for drum handling
- Closed room, no windows
- Explosion-proof lamps



# Bulk storage: drums

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- Using drums needs no expensive investment
- Low quality drums can affect quality and storage lifetime





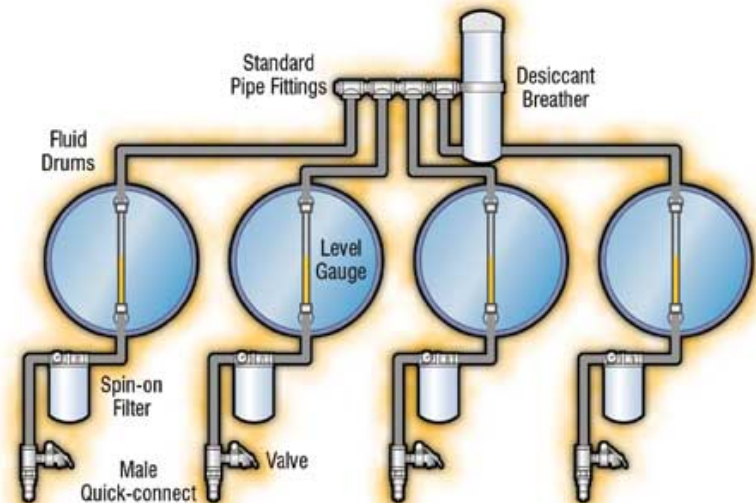
# Bulk storage: drums

- The shelving should allow the barrels to be stored on their side at three and nine o'clock to ensure an airtight seal



Wrong position

Right position



Breather and tapping system

# Bulk storage: plastic container systems

- Usually equipped with desiccant breathers
- Proper tapping
- Level gauges
- Less contamination
- Expensive



# Small storage and tools

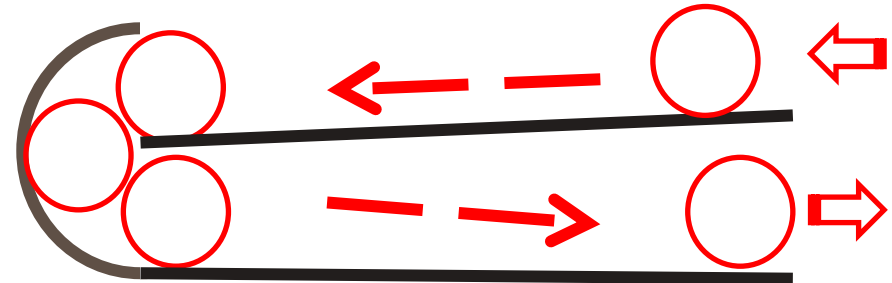
- Hermetic storage for different types of small amounts of oil and grease
- Proper handling equipment is a must





# FIFO: First in – First out

- Lubricants have limited storage lifetime
  - Oxidation
  - Settling of additives
- Do not overstock and use the product in the sequence they are bought



# Storage life time

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- Book authors George Wills and AR. Lansdown suggest the following inventory storage time

Product	Maximum Recommended Storage Time
Lithium Greases	12 months
Calcium Complex Greases	6 months
Lubricating Oils	12 months
Emulsion Type Fire-Resistant Fluids	6 months
Soluble Oils	6 months
Custom Blended Soluble Oils	3 months
Wax Emulsions	6 months

# Influence of ambient conditions on store life time

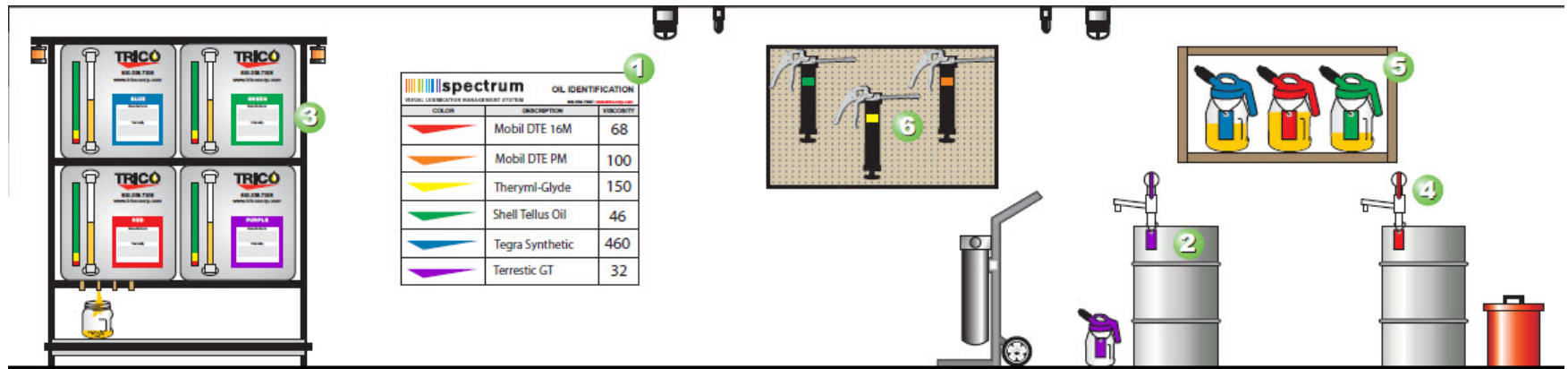
- Increase the temperature at which the lubricant is stored by 10°C doubles the oxidation rate
- Presence of water, usually introduced as a result of temperature variations

Variable	Increase Storage Life	Shorten Storage Life
Base Oil	Highly refined mineral oils, synthetic hydrocarbons and inert synthetics like silicon-based oils	Lower-grade mineral oils and inorganic esters
Additives	R&O additives	EP additives
Thickener	No	Yes
Storage Temperature	Low	High
Temperature Variability	Low	High
Container	Plastic containers or liners	Metal drums, especially poorly conditioned ones
Humidity	Low	High
Agitation	Low	High
Outdoor Storage	No	Yes

**The table shows a summary of variables that influence the storage life through a study done with several oil suppliers**

# Labeling

- Mixing of oil and use of wrong products are frequent cause for lubrication failures
- Labeling systems avoid this and are available on the market





# Labeling

- Color labeling system



# Oil cleanliness

To achieve the desired oil cleanliness, requires:

- Clean drums and tools for oil handling
- Avoid usage of (metal) funnels
- Filter/breathers installed and maintained
- Oil filters maintained
- Change oil in clean and in no dusty environment
- Keep inspection doors closed and seals in good shape
- Do oil analysis before usage specially for large quantities and electrical applications
- Do oil filtering only if we have doubts regarding the supplier



# Lubrication workshop and store

- Procedures, information work, journal should be shown in the workshop
- Material Safety Data Sheet for each lubricant must be available in the store room as quick reference and handle for lubrication technician, also in the medical service (safety department)



# Disposal

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- Clear separation of used and new products
- Do not use same handling equipment for used and new products
- Respect environmental aspects and local rules

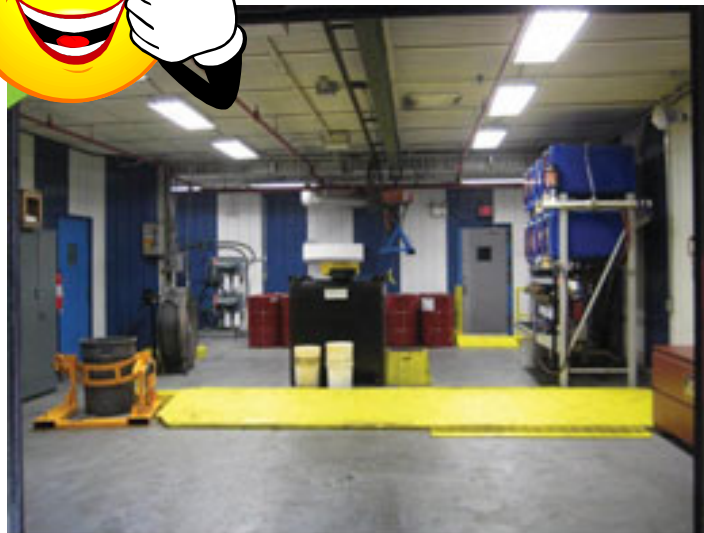




# Lubrikill is easy.....



# Proper lubrication too – just do it the right way





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