



## Champion Hi-Tech Lubricants - Storage and Handling Overview

As an ISO 9001-2015 registered manufacturer, Champion Brands, LLC has a number of procedures in place to ensure the highest quality product possible is blended, stored and shipped from our Clinton, MO plant. Quality assurance is of the utmost importance to Champion, allowing product to leave the plant that is contaminant-free and meets and exceeds stated specifications.

After leaving the Champion controlled environment, the sustained quality of these products may depend on how they are handled and stored. Please look over the guidelines listed below for an overview on how you can create a safe, clean environment suited for the storage of handling of Champion products.

### Picking the Right Storage Site

Champion products should be stored, if possible under safe covering and in a controlled, moderate temperature environment. Some instances may call for product to be stored outdoors. Please look over tips below that will guide you through the best inside/outside storage procedures possible.

- Good access for transport/delivery
- Ample room for product/vehicle maneuvering
- Safe/Regulated unloading dock with access to product storage area.
- Clean/Contaminate-free area for opening/dispensing product.
- Organized product storage area with up-to-date warning info visible.
- Inventory control system that allows easy access to check container conditions.
- Dedicated space for empty containers to be stored.

### Outdoor Storage

When protected from temperature fluctuation and water, most lubricants are not affected by outdoor conditions and are able to be, for limited periods, stored outside.

Trouble can arise when temperatures go below 0°C or when the product is exposed to frost/snow/ice – especially oil/water emulsions or fluids that are water-extendible.

The following product(s) should never be stored in the open:

- Greases
- Fatty Compound Oils (can solidify/separate during extreme cold)

Champion advises that packaged products be opened and stored under safe cover. Outdoor storage greatly increases the risk of contamination and the effects of condensation. Opened drums left outside will experience fluctuation of temperatures, leading to internal pressure changes. When these changes occur, seals are more likely to leak, leading to increased contamination exposure. Most susceptible to this are drums stored with the "bung-up" as the top of the drum becomes a rain catcher. This can also lead to rusting and the destruction of important labeling and warning info.

A tilted or bungs-down storage procedure is recommended with the bungs at the 3 o'clock and 9 o'clock positions, helping to make sure the gaskets are kept in constant contact with the lubricant inside. Storage racks are a necessity to keep clear of harmful surface water. Drums should also never be stored directly on top of a corrosive surface. There should be regular examinations for corrosion, fading or destroyed identification marks, and for seams and seals that have become weakened.

Five gallon buckets should also be regularly inspected as they are not designed to withstand severe temperatures or conditions. When outdoor storage is necessary, these products should be under safe cover on storage racks or covered by tarps with access to circulating air.

## **Indoor Storage**

Indoor storage is always preferred. With limited space, it should be reserved for small packaged lubricants which can be affected by frost, for opened packages, and for the special categories listed above under Outdoor Storage.

Rarely will indoor temperatures fall so low as to affect a lubricant adversely. However, excessive local heat from steam pipes, furnaces etc. should be avoided to prevent thermal degradation or volatilization of solvent containing grades. (In many cases, insurance requirements or local fire regulations necessitate separate storage facilities for volatile products).

If one part of the storage site is warm, it should be reserved for high viscosity (thick) oils to make dispensing easier. The lubricants store should be kept dry at all times, to prevent the corrosion of containers which would occur in damp conditions.

## **Stacking Barrels**

If space is insufficient to allow barrels to be stored on horizontal racks, they may be vertically stacked on pallets or stored in sloping racks.

Whichever method is adopted it should allow individual packages to be readily accessible with the minimum of disturbance to those not immediately required. A system of stock rotation must be devised, to avoid the accumulation of old stock. "First-in, first-out" is a good principle to establish.

When other packages are free stacked on top of one another, the safe height varies according to the stability of the stack and the weight which the lower packages can support. The use of pallets or slatted frames stabilizes the stack and helps prevent damage to the lower layers. Steel racks offer greater convenience for loading, retrieval, inventory control and stock rotation. The sloping rack with one side for loading and the other (lower) side for retrieval is an effective means of ensuring "first-in, first-out" barrel stock movement.

## Bulk Storage

Bulk lubricants storage tanks should be stored indoors, but they can be in the open if protected from driving rain and snow and from temperature extremes. All tanks, fill pipes and off-take pipes must be labeled with the full grade name of the product they contain, to avoid crossovers when delivering or dispensing. Your Champion Sales Rep can provide suitable grade tank labels if needed. Mild steel tanks require special adaptation for certain types of product.

Tanks without silica-gel breathers can slowly accumulate water as atmospheric moisture condensate on relatively cold tank walls, even when sited indoors. Water should be periodically drained from a stop-cock positioned so that it is the lowest point on the tank. Normally tanks are erected such that a 1-in-10 slope towards the drain reduces the risk of contaminated oil being dispensed. With some grades, excessive water ingress can result in full or partial emulsification of the product.

## Handling Barrels

The standard 55 Gallon drum weighs about 465 lbs when filled with oil. It is strong, being designed to be re-used several times, but is readily damaged by bad handling. The drums must never be dropped when being unloaded or moved. The impact can burst the seams, causing subsequent leaking or contamination of the contents. There are many suitable methods of handling drums, but the most widely accepted are:

- Forklift truck (either horizontally on the standard fork, or vertically with a single or four-barrel handling attachment)
- Two-wheel hand truck
- Triangular drum dolly
- Manual elevator
- Manual side-delivery stacker
- Chain hoist and trolley on 'I-Beam' bridge
- Rolling (by two workers)

## Storage of Grease

Drums containing soft grease should be stood upright. The standard 55 Gallon grease barrel has a large opening, the seal of which is readily damaged by careless handling. This may lead to the leaking of soft grease from a horizontal stored barrel.

## Good Storage Keeping

New packages should be wiped clean around the bungs, the labeling checked, and any marked variation from the product's normal color, smell or consistency reported. If there is any reason to doubt the good condition of a lubricant, the tank or packages concerned should be quarantined to isolate the problem and your Champion Sales Rep consulted for specialized advice. Lubricants must only be dispensed from clean, dedicated containers.

Covered receptacles should be provided for clean lint-free wipers and for dirty wipers. A drip tray should be positioned beneath each barrel tap. Spilled oil can cause accidents and should be cleaned up without delay. Sawdust is effective, but represents a fire hazard and should be removed as soon as it becomes oily. Crystalline materials are available as a substitute for sawdust, but leave gritty debris on the floor which, while usefully anti-slip, may provide a source of contamination.

Measuring cans with easy pour spouts allow the issue of oil to be recorded. Records should be accurate and complete, with the full type and grade of each lubricant noted. Abnormalities in the amounts of a particular lubricant issued should be investigated. Grease guns should be filled cleanly and carefully, for grease acts as an abrasive when mixed with grease or dirt. When empty, lubricant containers should have their bungs or lids securely replaced to prevent contamination.

Never re-use empty lubricants packages. Cases have been known of waste oil, other lubricants, chemicals, fuels and even water being stored in empty lubricants packages and being inadvertently used in place of the service lubricant. Results can be dangerous, and sometimes catastrophic.

Empty barrels should not be used for road barriers or for supporting scaffold poles or trestles. It is especially important not to use barrels for brazing or welding trestles, or to cut them up with oxy-acetylene equipment, because of the risk of explosion.

## Sampling

Samples of lubricants are sometimes required for analysis. After the barrel has been rolled to agitate the contents, a metal or glass sampling tube, or 'thief', is used to withdraw a sample. It is essential that both the 'thief' and the container into which the lubricant sample is poured are absolutely clean, dry and odor free.

## Contamination in Use

Lubricants must periodically be drained from the machine and replaced by fresh oils or coolant. Some used oils, particularly in less arduous applications, can be reclaimed for future use by settling, centrifuging, water washing or filtration. Your Champion Sales rep will advise on the appropriate treatment. Cutting oils are especially liable to contamination in use. For example, oil films on the surface of an emulsion may indicate from a leaking gearbox or hydraulic system.

When a soluble oil is prepared for use, the oil must be added to the water in the recommended amount, with consistent stirring to form a stable added to the oil, as an unstable emulsion may result. The water must be clean, and mixing should take place in a clean separate tank rather than in the machine sump.

It should be noted that a new emulsion rapidly deteriorates if added to one already contaminated, bacteria-infected or unstable. Unpleasant odors or rusting are indicators of bacteriological or chemical degradation. Clean coolant must be used in a clean sump for efficient operation.

## Fire Precautions

Packaged lubricating oil and grease does not represent a serious fire hazard. However, most lubricants have the potential for combustion and explosion in certain circumstances. The hazard is related to the flash point of the product. Lubricants with a flash point less than 55°C should be stored in closed containers away from heat in a well ventilated place. When the product is used in an open tank, the latter should be well hooded, well ventilated, and earthed to prevent static sparks. When not in use, the tank should be tightly covered. Products with a flash point of 55°C or greater require no special fire precautions, but should be stored away from heat whenever possible.

Lubricating oil is potentially dangerous in conjunction with more flammable materials. Oil-soaked sawdust, rags or cleaning paper must not be allowed to accumulate. If soaked with fatty oils they can ignite simply by, for example, coming into contact with a high temperature steam pipe.

Oil storage areas must be equipped with CO<sub>2</sub>, dry chemical or foam type extinguishers, and with sand filled fire buckets. Water should not be used for suppressing fires, as the burning lubricant may float on the surface and spread the fire. The lubricants storage area should be designated as a 'No Smoking' area.

## Deliveries

All deliveries should be supervised by a responsible person to ensure that the correct quantity and grade of lubricant is off-loaded or discharged. With bulk lubricants, it is essential that the correct grade is stored in the right tank, so supervision and tank labeling are essential. Delivery tickets should be signed by customers to verify that the correct grade and quantity have been received.

## Health & Safety

Champion lubricants present little or no health hazards provided they are used as recommended, and reasonable care is taken to keep them off the skin and away from the eyes, and to avoid ingestion or inhalation of vapors or mists. Frequent and prolonged contact with mineral oils can give rise to skin ailments, and users are advised to follow the basic general Health & Safety precautions listed below.

- Wear working overalls, impermeable aprons and gloves, etc. to eliminate unnecessary contact with oil.
- Avoid using dirty rags to wipe skin; to seek first-aid treatment immediately for any injury, however slight; to report any skin complaint without delay.
- Know where to obtain first-aid advice and medical attention.
- Wash regularly and use non-hazardous cleansers, barrier and conditioning creams.
- Change and dry-clean work clothes regularly.

- Use, if possible, separate lockers for outdoor and working clothes.
- Ensure the arrangements for the extraction of fine mists and sprays are in proper working order.
- Ensure that metal particles are removed from machines with suitable implements rather than by hand.
- Ensure machine splash guards and machine protection devices are properly adjusted.
- Ensure that the hazardous substance markings on packages which identify toxic, harmful or flammable products are understood and obeyed when storing, transporting or using the product.
- Observe all safety, hygiene and 'good housekeeping' rules at all times.

**FOR ANY ADDITIONAL INFORMATION THAT YOU MAY REQUIRE ABOUT LUBRICANTS STORAGE AND HANDLING, PLEASE CONTACT YOUR CHAMPION SALES REP.**

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