



Technical Topic

Shelf Life Recommendations for Lubricating Oils and Greases

Shelf life represents the time period during which a stored product, such as Lubricating Oils and Greases, can continue to be used without quality-control checks to verify performance attributes. Shelf life recommendations for ExxonMobil's Lubricating Oils and Greases are provided as guidance for our customers and distributors. Shelf life recommendations apply to lubricants that have been stored in their original, sealed containers under proper conditions. However, at the end of the shelf life period, ExxonMobil recommends laboratory testing (recertification) to ensure that the product will continue to provide the promised performance in the intended application.

"Short" and "Normal" Shelf Life Products

Normal Shelf Life: In general, the recommended shelf life for oils and greases is typically five years when stored properly in the original sealed containers.

Industrial and automotive oils may show deterioration by one or more of the following:

- **Cloudy appearance or strong odor.** Engine oils stored in UNSEALED containers for a prolonged period of time will absorb moisture from the air and may develop a hazy appearance.
- **Significant sediment buildup.** Slight sedimentation may occur for some oils over time and generally does not have an adverse impact on performance.

Greases may show deterioration in one or more of the following ways:

- **Excessive oil separation.** Some "bleed" is normal and required (see Technical Topic: *Grease Oil Release Characteristics*).
- **Significant change (>25%) in the grease consistency as measured by worked or unworked penetration.** Grease consistency affects the ease of grease application, low-temperature performance, and stay-put performance, all critical characteristics ensuring proper grease lubrication. In technical terms, grease's consistency is referred to as its NLGI Grade — from NLGI 000 (semifluid) to NLGI 6 (block-very firm).
- **Significant change in color or odor**
- **Noticeable change in texture**

Short Shelf Life: Water-based lubricants and formulations sensitive to moisture or those with high additive levels are typically classified as having a "short" shelf life. For these products, the container label is usually stamped with a "use by" date. If these types of lubricants are to be used after the noted "use by" date, ExxonMobil recommends they first be recertified to confirm quality and suitability for use. The shelf life stamped on a container label is the official shelf life designation for that container of product. Because of new formulations or field experience, posted shelf life in a list format may change. Therefore, always use the shelf life identified on the label.

Water-based lubricants include metalworking coolants and fire-resistant hydraulic fluids. These fluids gradually change and eventually become unusable. Generally, they will destabilize if frozen. Evidence of deterioration may include one or more of the following:

- Change in texture
- Change in odor (offensive or pungent)
- Separation of the oil and water phase
- Discoloration
- Bulging drums

Moisture-sensitive or high additive content products include soluble oils, and indications of deterioration may include one or more of the following:

- Hazy appearance
- Phase separation
- Heavy sediment

Storage and Handling: The Lubricating Oil and Grease shelf life recommendation provided by ExxonMobil applies to products stored in the original sealed containers in a sheltered environment under good housekeeping conditions and at typical ambient temperatures. You should consult your local ExxonMobil representative for more product-specific recommendations regarding storage. Also, please refer to our Technical Information Sheet titled "Storing, Handling and Dispensing Lubricants" for more information on this subject.

Shelf Life vs. Lubricant Service Life

There is a fundamental difference between product life in storage and product life in service. During storage, the packaged product generally remains motionless for extended periods, and can be exposed to cyclic variation in temperature and other environmental conditions such as vibration, which can impact the components of the formulation or potentially allow ingress of contaminants from the environment — both of which have the potential to affect the product's performance characteristics.

However, when the lubricant is in service, it is exposed to the dynamic conditions of the lubricated system (e.g., circulation, splashing, churning, etc.). Once a product has been placed in service, its suitability for continued use becomes a function of other factors, including:

- The procedure for lubricant replacement
- Original equipment manufacturer's recommendation for relubrication or change interval
- Recommendations from an ExxonMobil engineer
- End-user company policy
- Condition-monitoring information from equipment- and oil condition-monitoring programs, such as *Signum* used-oil analysis
- Lubricant contamination with process materials, water, dust, wear debris, other lubricants, etc.

Other Considerations

Two additional considerations related to prolonged storage are:

- The equipment for which the lubricant was originally recommended may have been replaced or modified
- A better product may have been developed

In each case, the lubricant product should be evaluated both for quality and for suitability in the equipment in which it will be employed.

Conclusion

Shelf life is a key consideration in proper inventory-management practices for packaged lubricating oils and greases, to ensure that they will be suitable for use when used, delivering performance as promised in the intended applications.

Consumers of short shelf life lubricants should develop their own practices for storing Mobil products according to these recommendations and their own experience. Proper storage, handling, and application of lubricants will deliver benefits in the form of lubricant performance.

ExxonMobil does not recommend the use of their lubricants beyond the stated shelf life. Please contact the ExxonMobil Technical Help Desk at 1.800.MOBIL25 (662.4525) for guidance if you have ExxonMobil lubricants at, or beyond, the stated shelf life.

For more information on all Mobil Industrial Lubricants and services, contact your local company representative or visit mobilindustrial.com.