

Technical Service Bulletin

Date: 11/21/2005

Product Description: All AMSOIL Products

Subject: Lubricant Shelf Life and Proper Storage

OBJECTIVE:

To provide information to AMSOIL Dealers and customers regarding the shelf life of AMSOIL products. Proper storage and handling of AMSOIL products is also discussed.

ISSUES:

The range of shelf life of lubricants recommended from one manufacture to another can vary from one year to almost infinity. There is no straightforward and meaningful method to determine the shelf life of lubricants. One simple reason is that storage environments greatly affect the shelf life of lubricants. Not all lubricants are stored under identical or ideal conditions.

TECHNICAL DISCUSSION

Several factors can influence the shelf life of lubricants:

Product Design:

Chemistries and additives - some formulation chemistries and certain additives are more aggressive than others. The nature of the chemistry can affect the shelf life of lubricants.

Storage Temperature:

Both high heat (greater than 100°F) and extreme cold (lower than 0°F) can affect lubricant stability. Decreasing the storage temperature can cause sediment formation and additive separation. The ideal storage temperature should be between 45°F and 80°F.

Water:

Water can react with additives in the lubricants to form insoluble materials and shorten the shelf life. Water can also promote microbial growth in the lubricants. Water could get into the container through improper handling or condensation. Water condensation can occur when the storage temperatures fluctuate over a wide temperature range.

Contamination:

Elements such as iron and copper in the oil can catalyze the lubricant oxidation process and shorten its shelf life. These elements can be introduced to the lubricant by improper handling, storage and use of equipment.

Frequent Agitation:

Frequent agitation of an open lubricant container can incorporate air into the oil. Oxygen can react with lubricants and affect their viscosity and consistency. Agitation also serves to emulsify water into oil and increases the rate of lubricant degradation.

Light:

In some cases, light may impact the color and appearance of the lubricants.

Submitted By: DW/DY

Approved By: Alan Amatzio

Approval Date: 12/22/05

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RECOMMENDATIONS:

The optimum storage environment:

1. Store lubricants in a cool, clean, and dry indoor area.
2. The ideal storage temperature is between 45°F and 80°F and at a temperature that does not fluctuate significantly.
3. When storing drums or other large containers outside for extended periods of time, ensure that no dust or moisture from enters the container.
4. Grease containers should be stored right side up due to bleeding (fluid separation). Bleeding commonly occurs with grease and is more prominent at higher temperatures.
5. Wipe off the tops and edges of containers before opening to avoid any contamination from improper handling.
6. Always use clean tools.

Common signs of improper storage or contamination of a lubricant may include:

- Layering within the fluid
- Formation of solid particles
- Color change or hazy appearance

If any of the above conditions exist, the lubricant may have become contaminated or its shelf life may have been exceeded. In any case it is advised to dispose of the product properly. In some instances a lubricant can be tested to determine its serviceability. If the product's test results fall within the original specifications, it should be suitable for use. The user should also validate the product's performance claims against the equipment manufacturer's current specifications. Equip-

ment design and specification changes over time can make the old product obsolete for new equipment.

ESTIMATED AMSOIL PRODUCT SHELF LIFE

Generally, under the ideal storage conditions discussed in the RECOMMENDATIONS section, the estimated product shelf life for AMSOIL lubricants can be very long with five years being a guideline.

Care should be exercised when using lubricants that have been stored for a long time. Lubricants can be tested in the laboratory to assure their integrity. The lubricants need to be carefully evaluated against their listed chemical and physical properties to ensure there are no irreversible changes in the lubricants. For grease products, physical evaluation of the grease to ensure no excessive bleeding and proper consistency is a good practice.

This information is intended to be used as a general guideline. It is not a binding performance measurement or contract for AMSOIL products.

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