



## Lubricant Storage, Stability and Estimated Shelf Life

*LubricantsUniversity.com*

Most materials including lubricating oils and greases deteriorate with time. The art of [good storage practice](#) is to always have materials available when required, and to ensure stock turnover so that lubricants are used before any significant performance loss has occurred.

### STORAGE CONDITIONS AFFECTING ALL LUBRICANTS

The storage environment greatly affects the estimated shelf life of lubricants and greases. Conditions which may affect oil lubricant shelf life are as follows:

**Temperature** - Both high heat (greater than 110°F) and extreme cold (less than 0°F) can affect lubricant stability. Heat will increase the rate of oil oxidation. Cold can result in wax and possible sediment formation. In addition, alternating exposure to heat and cold may result in breathing of drums and possible moisture contamination. A temperature range of 0°F to 110°F is acceptable for storage of most lubricating oils and greases. Ideally, the storage temperature range should be from 32°F to 77°F.

**Light** - Light may impact color and appearance in lubricants. Lubricants should be kept in the original metal or plastic opaque containers they were packaged in.

**Water** - Water will react with some lubricant additives. It can also promote microbial growth at the oil/water interface. Lubricants should be stored in a dry location, preferably inside.

**Particulate Contamination** - Lubricant drums and pails should not be stored in areas where there is a high level of airborne particles. This is especially important when a partially used container is stored for later use.

**Atmospheric Contamination** - Oxygen and carbon dioxide can react with lubricants and affect their viscosity and consistency. Keeping lubricant containers sealed until the product is needed is the best protection.

## Estimated Shelf Life of Base Oils and Lubricating Oils

	Estimated Shelf Life, years <sup>1</sup>
<b>Base Oils</b>	5+
	Estimated Shelf Life, years <sup>1</sup>
<b>Lubricating Oils</b> (mineral or synthetic)	5

<sup>1</sup> Shelf lives are estimates. They are based on the assumption that the optimum storage conditions listed below in *Recommended Storage Conditions and Practices for Lubricating Oils and Greases* are used.

### Estimated Shelf Life of Greases

	Estimated Shelf Life, years <sup>3</sup>
<b>Greases</b> (mineral or synthetic)	2-5

<sup>3</sup> Shelf lives are estimates. They are based on the assumption that the optimum storage conditions listed below in *Recommended Storage Conditions and Practices for Lubricating Oils and Greases* are used.

### ADDITIONAL STORAGE CONDITION AFFECTING GREASES

Changes in grease properties during storage are dependent upon the thickener type and concentration, the base fluids, and the additives used. One additional condition that commonly affects greases is:

**Oil Separation** — Oil will naturally separate from most greases. Temperatures in excess of 110°F can accelerate oil separation. If grease is removed from a drum or pail, the grease surface should be smoothed to prevent oil separation into the cavity.

### RECOMMENDED STORAGE CONDITIONS AND PRACTICES FOR LUBRICATING OILS AND GREASES

1. Store lubricating oils and greases in a cool dry indoor area where airborne particles are at a minimum. Indoor storage also prevents label and container deterioration from exposure to weather. The ideal storage temperature range is from 32°F to 77°F.
2. If drums must be stored outside, use plastic covers or tip oil drums to direct water and contamination away from the bungs. Always store greases upright to prevent oil separation.
3. When necessary, bring grease to satisfactory dispensing temperature just prior to use.
4. Rotate inventory. Check the container fill date and use the oldest container first.
5. Keep containers tightly covered or closed to avoid contamination.

6. Wipe off the tops and edges of containers before opening to avoid contamination.
7. Use clean tools and equipment when pumping or handling lubricants and greases.

### **PRODUCTS EXCEEDING THE ESTIMATED SHELF LIFE**

If you have an unopened container with a product that is beyond the estimated shelf life, it still may be suitable for service. The product should be tested and evaluated against the original product specifications. Thoroughly mix the container to ensure a uniform, representative sample is taken for testing. If the product's test results fall within the original specifications, it should be suitable for service. Following testing, if the product is not consumed within a year, the product should be earmarked for reclamation.

As a final note, the user should validate the product's performance claims against the equipment manufacturer's current specifications. Equipment designs and specifications can change over time making an old product obsolete for new equipment. Call Chevron, 1-800-LUBE-TEK, if there are questions concerning specification obsolescence.

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