An interesting distinction between "Shelf Life" and "Functional Life"

Thanks to our friends at Nye Lubricants for providing this information. To learn more go to: [http://www.nyelubricants.com/faq.shtml#3](http://www.nyelubricants.com/faq.shtml#3)

3. What is the shelf life of your products?
The shelf life of most oils and greases manufactured by Nye Lubricants is four years from date of shipment, provided that the oils and greases are properly stored in their original, unopened containers.

Because of military specifications, the unique properties of certain raw materials, or strict shelf life limits imposed on some of the raw materials we use to manufacture lubricants, a small number of Nye products have a shelf life of less than four years. In our SmartGel™ product line, Curing Gels OCK-451 and OCK-433 have a shelf life of six months. Rheolube 708F and the Rheolube 733 have shelf lives of two years.

4. Is shelf life the same as functional life?
No, shelf life is not the same as functional life. Shelf life is the period following the lubricant’s manufacture during which it is deemed suitable for use without re-testing its physical characteristics. Functional life is determined by durability or accelerated life testing of a lubricant in a component under expected operating conditions. It should be noted that most lubricants manufactured at Nye are designed for lifetime component lubrication, which often exceeds 10 years in extreme operation conditions.

Synthetic oils are inherently stable materials. Generally, they are not expected to oxidize, polymerize or volatilize at room temperature for 10 years or more. For example, we have regularly conducted ASTM tests to check the quality of certain very delicate synthetic hydrocarbon precision bearing oils five years after manufacture and have detected no degradation. Ester oils, where the ester linkage may be subject to a minute degree of hydrolysis in the presence of moisture, could become more acidic if moisture is present. Fluorinated oils and silicones are not likely to be affected by simple aging.

Greases can "age" in more complicated ways. Grease quality could be affected by a change in the gel structure. If the gel contracts, significant oil bleed would be evident and the remaining grease would stiffen. The gel structure may also become softer over a period of time. In both cases, however, a visual inspection of the grease should suggest retesting before use.