



Shouldn't grease upper operating temperature claims have a technical basis?

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Brief description: Historically, high-temperature grease claims have been based upon the grease dropping point. A better way is to define high-temperature performance capability in terms of a standardized bearing test.

Synopsis

Grease high-temperature claims based on different standards can vary widely. The range of approaches commonly used in the industry to define the maximum temperature at which a grease will provide adequate lubrication can be confusing for customers wishing to select the best product for their application. A lubrication decision based upon a published grease temperature range can lead to undesired consequences unless the user understands the basis for the high-temperature limit being claimed.

Factors limiting grease high-temperature performance include degradation due to oxidation, and/or the loss of base oil from grease bleed and evaporation. In general, dynamic grease life determinations based on standardized bearing tests better represent what occurs in the field, providing a measure of grease high-temperature performance limits which is more realistic than claims based on dropping point.

A test program was conducted on a variety of commercial greases, which included DIN 51821 FAG FE9 Life, ASTM D4290 Wheel Bearing Leakage, ASTM D2265 Dropping Point, and ASTM D5483

PDSC testing, and the test results were compared to product data sheet claims. Interesting discrepancies were found between product high temperature claims and their relative ratings based on FE9 or Wheel Bearing Leakage testing. An industry standard approach to high temperature claims would be preferable to the various claims made by suppliers today. Such a basis would be far superior to the “rule-of-thumb” guidance provided in the NLGI Lubricating Grease Guide (Maximum Usable Temperature in the Grease Application Guide table) which is based solely on thickener type, and would benefit consumers and producers alike, reducing confusion in the marketplace.