

Comparison of Dropping Points of Conventional Grease against Modified Grease with Graphite

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Graphite is a naturally occurring form of crystalline carbon found in metamorphic and igneous rocks. The layered structure of graphite is being used as a lubricant in many applications. This study focuses on improving the quality considering the effects on dropping point of grease with the addition of graphite which is a vital component as it can introduce different properties to conventional grease such as ability to withstand high temperatures. Preparation of graphite grease was done by crushing graphite into a size less than 75 μm , and graphite percentages of 5%, 15%, 25%, 35%, and 45% by weight of grease was added and mixed with the developed grease. Five percent of natural latex as a localizing agent was used by weight of graphite at each sample. Graphite-grease samples were prepared at a large scale. Dropping Point is one of the most important test methods available to assess the performance of grease to provide quality assurance during batch-to-batch manufacturing. As the temperature increases in test apparatus, drop of grease sample falls from the cup to the bottom of test tube and temperatures are recorded which confirm the ASTM D 2265. This temperature is the upper temperature limit to consider as the Drop Point for the grease but not the melting point. When graphite grease and conventional grease were tested, with the increase of graphite content in each sample, dropping point was observed to increase reaching 206⁰C at sample containing graphite of 45% whilst reaching 173⁰C for conventional grease. However it is found that introducing graphite beyond 50% affects adversely on other properties. Therefore based on the dropping point results, it is concluded that graphite-grease could be applied for high temperature applications. It is expected to conduct tests for further characterization. Therefore developed graphite-grease could be used in specific lubricant applications.

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