Determination of the Hard to Quantify Property of Tackiness for a Variety of Lubricating Greases Using a Newly Developed Tackiness Tester

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Overview

Tackiness is a measure of the adhesive properties of a material and is the result of high weight polymers in grease. The most common method of testing for a grease's tackiness is the finger test. This test is very simple, and only provides a qualitative estimate for the tackiness. The K95200 tests a grease's tackiness by using the same method as the finger test, but with equipment that can return a quantitative value for the tackiness.
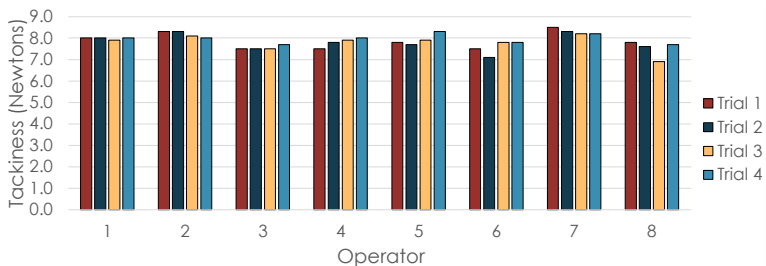
Data Analysis

The graph displays the measured tackiness of nine grease samples, each tested for three trials. The greases range from low, low-moderate, and moderate qualitative tackiness, determined by the finger test. The quantitative measurements of tackiness determined by the K95200 closely follow the descriptive tackiness.
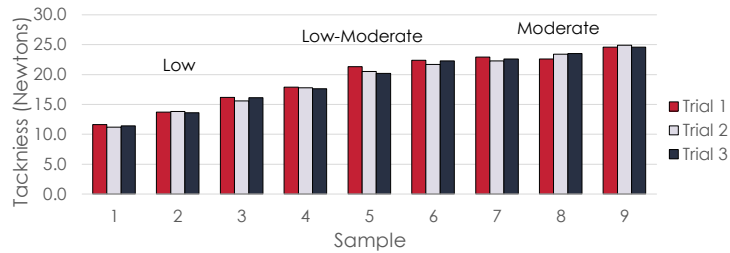
Repeatability

This graph displays the tackiness result of one grease sample measured by eight different operators for four trials each. The repeatability standard deviation is 0.3538 and the repeatability interval is 1.0543. This shows that the K95200 has high repeatability with 95% of readings for this sample falling within 0.7076 N or 9% of the mean.

What is the Finger Test?

The finger test is a simple test that allows the tester to determine a qualitative "measurement" for the tackiness of a grease sample. The test is conducted by placing some amount of sample between your thumb and index finger and slowly pulling them apart to see how resistant the sample is to separating. This allows the tester to determine if the grease is of low, moderate, or high tackiness. The biggest downside to this test is that "low" tackiness to one tester may be "moderate" tackiness to another, as there is no way to standardize something as subjective as this test.

How Is Our Tackiness Test Different?

Our tackiness tester uses the same principles as the finger test but allows for the results to be "standardized" since the instrument conducts the test the exact same way every time. Unlike the finger test, the exact amount of force exerted to separate the grease sample is measurable. This allows for the test to be reproduced by different people in different laboratories for a more consistent and meaningful result than the traditional finger test allows.

Conclusion

The K95200 Tackiness Tester consistently produces results with high repeatability and is undoubtedly a better testing method than the finger test. This test method removes some aspects of human error and subjectivity from the testing of tackiness. The instrument is easy to use and allows for the acquisition of unambiguous quantitative measurements for tackiness compared to vague qualitative descriptions of tackiness. The instrument features reliable technology that produces consistent results, making the K95200 an optimal choice for grease tackiness testing.

How Our Instrument Works

1 Collect a grease sample from the original container with a spatula. The collected sample will be loaded into a syringe for measuring.

2 Load the sample into a small plastic bag. Use a flat edge to pack the grease sample into as small of an area as possible. This will eliminate as many air pockets as possible.

3 Cut the tip off the bag and use this opening to fill a syringe to at least 5 mL, occasionally tapping the syringe on the lab bench to pack the grease tighter. Make sure there are as few air pockets as possible.

4 Using the syringe, dispense 5 mL of grease sample onto the bottom metal plate of the instrument. Dispense the sample in a centered pile to avoid the presence of air pockets. Press start to begin the test.

5 Allow the test to finish to completion and the resulting measurement of tackiness for the grease sample will be displayed on a data screen.

Data Screen

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