Analysis of Cloud and Pour Points of Fuels Under Low Temperatures

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Introduction

In low temperature conditions, fuels may experience a wide range of changes to their characteristics and will often lose most of its functionality for its intended application. The cloud point of a fuel is the temperature at which a fuel begins to solidify, resulting in visible cloudiness, while the pour point is the lowest temperature at which the fuel is capable of flow. The K7700X Automatic Cloud and Pour Point Analyzer is a comprehensive, intuitive, and accurate tool to use in order to determine the cloud point and pour point of fuels within a single unit.

Instrumentation

The K7700X Automatic Cloud and Pour Point Analyzer is a state-of-the-art equipment and the latest design for measuring cloud and pour points of different fuels. This instrument measures the cloud point through Optical Detection and the pour point with the Automatic Tilt Method. The unit can conduct tests in accordance with ASTM D5771 and ASTM D5950 test methods and other related test specifications.

ASTM D5771

For the determination for the cloud point, this method uses an automatic instrument with a specialized optical sensor to observe layers of the fuel up to 40 mm thick. The automatic instrument will observe the fuel first at a liquid state and as time passes, the fuel begins to change from a single-phase to a two-phase system. Once the change in appearance to a cloudy like state is observed, the temperature of the cloud point is measured.

ASTM D5950

For determination of the pour point, the automated instrument will undergo the tilt method. The instrument will then measure the pour point using a similar optical sensor as to when it tested the cloud point once it detects no movement on the surface of the jar when tilted. This is where the lowest temperature is recorded where there is still movement when the container is tilted.

Test Preparation

First, place a cork ring around the testing jar and once it is secured, you can pour your sample into the jar. After this, load your sample into the test sleeve and secure it. Now you are ready to test your selected sample, you can set any desired parameters for the experiment and begin by clicking the start button.

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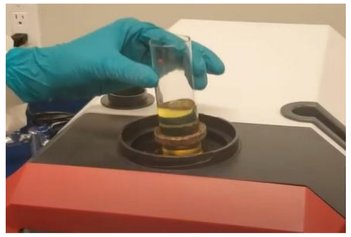
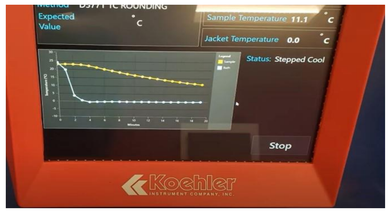


Test Results

After beginning the testing process, the fuel will be preheated to the desired parameter set during the preparation phase and will record data every minute until the heating is complete. Once the preheating is complete, the test will begin decreasing the temperature until the cloud or pour point is determined and during this process, a graph of the entire experimentation will be available to the user as well. Results will then be shown and stored under the results tab of the touch screen panel. Past tests can also be accessed from here, as well as graphs from previous



Conclusion

The K7700X Automatic Cloud and Pour Point Analyzer is an effective tool for determining the cloud and pour points of a wide range of fuels. This new technology allows for hands-free, automated experimentation with ease of access with all this its intuitive features, along with accurate test results. Additionally, the unit's touch screen display and advanced software allows for the best, and most reliable way to store and create new data for experiments and any kind of testing. All these features demonstrate the suitability the K7700X Automatic Cloud and Pour Point Analyzer for testing low temperature properties of fuels in order to determine the appropriate fuel for the intended application. The determination of the cloud point and pour point of a petroleum-derived product is essential for ensuring that machinery and motile components are not damaged from the usage of fuels that are incompatible with low temperature operating conditions.