

Imaging Possibilities Allow Cloud Points in Oils to be Studied Visually

Crude oil and crude oil products contain substantial amounts of petroleum waxes. These waxes or paraffins have a limited solubility in oil and tend to precipitate out at a temperature called the cloud point. With the FP82 hot stage, the precipitation process can easily be detected optically.

The cloud point is of practical importance because precipitation and deposition of paraffins leads to a reduction of the diameter of production pipelines making crude oil recovery difficult. The accurate determination of cloud points is critical as this property can vary by as much as 30 °C between different oil wells. If the temperature of the oil falls below the cloud point, there is a strong possibility of deposition of precipitate on the inside walls of the pipelines. This will eventually result in reduced flow, a pressure drop and possibly a blockage.

Hot-stage microscopy is a powerful tool that is widely used for the visual characterization of all kinds of thermal transitions. One example is shown in Figure 1 where the system yields a wealth of information that facilitates the interpretation of cloud point determinations thereby helping to prevent catastrophic production problems.

Today, developments in computer and video technology offer advantages over conventional image capture techniques. These benefits make it easy for laborato-



Figure 1: Wax precipitating out of diesel fuel as the temperature is lowered to the cloud point. The wax forms large flat crystals that can quickly plug fuel lines and fuel filters

ries to quickly store, evaluate and share information in digital format.



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