Flow Assurance Specialist

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Coaxial Shearing Wax Deposition Apparatus.

The PMAC Systems Coaxial Shearing Wax Deposition Apparatus developed by Alan Smith, to perform the Coaxial Cold Finger Test. The unit provides a method for quantifying the predicted amount of wax that will be deposited on the internal wall of a pipe at a predetermined temperature and flow regime. Wax is the amalgam of normal paraffin's, resins, gums and liquid oil, which deposits on the cold surface.
The wax can be collected and the nature of the crystal structure observed and compositional analysis undertaken. The data generated can be used to predict the amounts of wax that will be recovered from the pipeline during pigging operations and the frequency required to maintain a clearway.

Coaxial Wax Deposition Apparatus.
The procedure is used to evaluate the efficiency of wax dispersant chemicals. Comparative tests can be performed with or without the presence of inhibitors. Shear conditions are simulated and the deposition rate is related to specific pipeline conditions.

Equipment Description.
The **Coaxial Shearing Wax Deposition Apparatus** is a laboratory test unit comprising a Coaxial Cell and a Cooling Unit. The cooler is a Glycol bath provides cooling medium for the Cold Finger test with sufficient heat transfer to maintain an adequately low temperature.
The cold finger consists of a stainless steel cylinder, which is cooled internally by pumping cold glycol through it. An outer heating jacket fitted to the oil container maintains the Bulk Oil temperature. Shear is applied to the surface of the Cold Finger by rotating the outer cylinder at a controlled rate to simulate a rate of shear generated by the flow in the pipeline.

When the Wax Deposition Profile is determined for the crude oil where the bulk oil temperature is controlled at a temperature representative of the oil in the pipeline, and the inner core of the coaxial cell is controlled at a temperature which, is representative of the minimum wall temperature of the pipeline measured at a specific reference point.

Elevated Pressure Coaxial Cell.
The high pressure, high temperature (HP/HT) Coaxial Cell was developed to provide a Wax Deposition Profile at above atmospheric pressure. The current specification is 1500 psig.

Pressure regime to be specified at time of ordering.