CEST02_084

Calculating of minimum flow rate for ABU-ATTIFEL Crude Oil

Fathi I. Ashour1, Abdunase. Aljabri1, Ezeddine E. Zorgani2
1Dep. of Chemical, Polymer and Petroleum Engineering, Higher Institute of Science and Technology, Algaraboli, Libya
2National Oil Corporation, Tripoli, Libya
fathi_ashor@hotmail.com

ABSTRACT

The waxy crude oil crystallizes when the crude cools and causes part of crude oil mass to gel. Actually congealing of the oil may start at temperatures considerably above the pour point. When this cooling takes place in a pipe, a certain pressure is required to initiate the flow of the waxy crude. Waxy crude oils are becoming more important since often have low sulfur contents, making them desirable from an environmental view point. Also waxy crude oils are available and the need for new supplies has encouraged production of these difficult to handle crude's. However, the economic situation now requires better design of new installations because of the high cost involved. Many methods were considered to keep the crude oil in an acceptable state of fluidity. There are many factors that influence the design of a pipeline which is to handle waxy crude's. The restarting pressure to break the gel and restart pressure the flow may exceed, sometimes, the bursting pressure of the pipeline. This consideration must be taken into account while simulating the pipeline. The use of improvers to reduce the viscosity, gel strength and pour point of the crude oil should also be evaluated. The use of flow improvers is generally effective near the pour point because the waxes really have not start to cause problems until that time.

Keywords: Crude oil; wax contents; pour point; viscosity behavior; pipeline.