

Abstract

The considerable amounts of wax found in some of the Sudanese crude oil that constitute the Nile Blend pose serious negative impacts on its transportation and directly affect its quality cost.

Detailed characterization of Sudanese crude oils with emphases on rheological properties that were used as indices for flow assurance was undertaken. The physical and chemical characterization of samples collected from six fields, namely, Heglig, Unity, Elnar, Toma South, Eltoor and Bambo, was done where Pour Point (PP), API, Relative Density, Viscosity, Bottom Sediments, Water Cut, Carbon number distribution, Wax Content, Wax Appearance Temperature (WAT), Effect of Pour Point Depressants (PPD), and Yield Stress were studied.

Results analysis indicated that heat treatment to which crude oil is subjected at Central Processing Facilities (CPF) is uncalled for. Heating of crude at CPF can be maintained at 60° C instead of 105° C. Further it's also found that 60° C is sufficient for the dosed PPD to work efficiently.

Moreover it was found that the dosed PPD can be reduced to 50%, i.e. only 200 ppm rather than 400 ppm as at present practiced.

The study indicated that the selection of PPD should be done critically, ultimately an effective type that suits the crude oil to which it shall be applied is selected.

Application of the suggested measures shall reduce the cost to the tune of over US \$ 5 million.