

Investigation for Characterization of Paraffinic Deposit from Oil Production

Mariam Samcha* and Amel Boukadi

Entreprise Tunisienne d'Activités Pétrolières, Tunisia

The presence of heavy organic compounds such as paraffins and asphaltenes in crude oil causes several problems during the petroleum production. Precipitation of these compounds causes the formation of deposit causing the clogging of installations, the blockage of pipeline and the shutdown of production. The basic maintenance method consists in sending scrapers into these pipes in order to drive out these deposits.

This is the case of an oil field in Tunisia, which produces a paraffinic crude. The exploitation of this field and the shipment of the produced oil to storage terminal, have led to the accumulation of large amounts of deposits from the regular pipeline pigging.

In this work we are interested in the characterization of the crude oil and the deposit formed by several techniques included physical-chemical analyses, chromatography, Fourier Transform Infra Red spectroscopy, Differential Thermal Analysis.

The obtained results have shown that the deposit is so rich in paraffin and characterized by higher asphaltenes contents than the original crude oil. The paraffinic fraction isolated from the deposit seems to be of two types: microcrystals and macrocrystals.

In order to remedy the deposit problem, curative solutions has been used to dissolve the deposit.

Finally, to find preventive solutions several tests were performed using two paraffin inhibitors.

The best results, for which deposit remained fluid at room temperature, were obtained by adding a dispersant to the paraffin deposit, previously mixed with a predetermined amount of the crude oil from which it is derived.

Biography:

Mariam Samcha is a chemical engineer graduated from faculty of Sciences of Tunis in 2004. She obtained her master degree in analytical chemistry on molecular characterization of paraffins isolated from different Tunisian crude oils.

Since 2008, she is the coordinator of the petroleum fluids Laboratory in Petroleum Services Department from ETAP. Her responsibilities included the studies on oil and gas as well as special work on crude oil such as: mixture oil compatibilities, Deposit identification, chemicals additives efficiency, emulsion formation and separation, flow assurance.