

ABSTRACT

Correlation studies and characterization of thirty (30) crude oils have been carried out so as to find out the relative level of impact that individual parameters exhibit over the overall stability of water –oil emulsions. The analysis of the crude oil was determined with respect to the bulk and interfacial properties and specific characteristics of their water – oil emulsions. The parameters were spectroscopic signals in the infrared and near-infrared regions, viscosity, interfacial tension, acidity, compositional properties, density, molecular weight, droplet size distribution, stability to gravitationally and electrically influenced separation and dilational relaxation. As observed, a pronounced relationship between several physicochemical properties was established. With time dependent observations, water-in –heavy oil emulsions could be destabilized at very low electric field magnitudes. Whenever droplets interacts with one another I an non- homogeneous electric field, a very strong dielectrophoretic forces tends to disintegrate the films and gave rise to coalescence .

Keywords: Spectroscopic signals, near-infrared regions, interfacial properties, dilational relaxation, non-homogeneous, coalescence, electric field.