Abstract

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Crude oil quality changes with time, this study evaluation of Basra crude oil, the significance of crude oil evaluation in refinery operations, upstream planning, supply organizations/ traders, model engineers and research and development.

The study was conducted using Basra crude oil during 2012. Crude oil sample was taken from the strategic pipe line of Basra crude oil and was collected (one sample /month).The analysis of collected crude oil sample was carried out using well recognized standard procedures given in ASTM, IP and UOP methods in Daura refinery laboratory.

The assay curves obtained using Hysys program technique (soft ware) to predict the various cuts properties and crude oil properties like (average molecular weight, viscosity, API, acentric factor, critical pressure, critical temperature) . Some thermophysical properties of Basra crude oil like (average molecular weight ,refractive index) and PAN content mole % had been predicted by mathematic correlations [Pedersen equation], Other like correlation index by [Dean &Davis equation] and expansion factor for each (1) C° by [petroleum measurement tables] .

The above correlations predicted the various properties within acceptable accuracy limits. The correlations predictions also agreed well with other relevant data reported in the literature.

The results show that that Basra crude oil can be classified as medium crude (API= 29.7٥٤), on the base of crude oil was referred to mixed base crude oil (Watson characterization factor K_w = 11.85), acceptable and reasonable level paraffin concentration (Xp =60.35 mole %), on the sulphur content was referred to as high sulphur content or sour (sulphur content wt%=3.2043), acceptable

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level of water and sediment (0.092%vol), acceptable level of salt content (0.001wt % = 3.07387PTB) and metal content like (vanadium ppm=61.38, nickel ppm=16.5442).