



The efficiency of depressor additives application for ARPD inhibition and removal in oil storage tanks

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The oil produced in the fields of Kazakhstan is characterized by a high content of paraffin hydrocarbons, which is one of the factors forming asphalt-resin-paraffin deposits (ARPD). Rapid formation of ARPD on the inner surface of the oilfield and refinery equipment greatly reduces the efficiency of the pumping installations, impairs the capacity of pipelines and reduces turnaround time equipment operation [1]. The problem of combating complications arising from the ARPD formation is especially important in the operation of refinery tank farms. Deposits accumulation makes it difficult to inspect the tanks condition, significantly reduces the useful capacity, which leads to a complication in the process of their operation, to decrease in the technical and economic performance of oil reservoirs. It is economically more advantageous to use heated oil with the addition of additives as a solvent, since the presence of a large amount of oil in each refinery and its return after the dissolution of the sediments does not entail changes in the technological schemes. The work purpose is a comprehensive evaluation of the different additives effect on the dissolving properties of crude oil and the possibility of its use as solvent deposits.

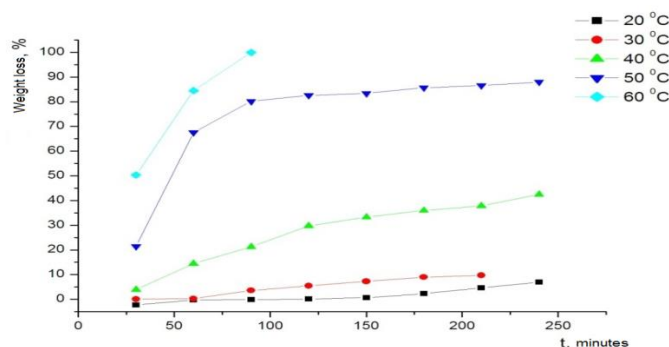


Fig. 28 - Effectiveness of ARPD dissolution in oil at various temperatures

The results of work showed that the depressant additives injection significantly improves the aggregative stability of the oil dispersion system for given oil. It has been established that in the presence of additives, the ARPD dissolution time is reduced by half. At 50°C, 100 % solubility showed PAO80072 and, respectively, DMN sample 2 at 135 and 180 minutes. Carried out investigations of the additives effect on the oil capacity in relation to ARPD determined the best results with the use of DMN additives sample 2 and DP2G. The oil capacity for them at the same time was 33.11 kg/m³ and 36.58 kg/m³, respectively, which in comparison with oil without additives provides a capacity increase of 43.02% and 58.01%. The best result was obtained using the additives PAO 80072 and DP2G.

[1] L.V. Ivanova, E.A. Burov, V.N. Koshelev. // Electronic scientific journal "Oil and Gas Business". 2011. №1. P.268-284

