

**EVALUATION OF SEDIMENTATION, COMPATIBILITY AND SOLVENT BEHAVIOUR IN TERMS OF OPERATIONAL PROPERTIES OF WASHING OILS**

© **A.L. Bannikov** (National Technical University «Kharkiv Polytechnic Institute», 2 Kyrpychova Str., Kharkiv, 61002, Ukraine), **K.O. Doroshenko** (State Enterprise "Ukrainian State Research Institute for Carbochemistry (UKHIN), 7 Vesnina str., Kharkiv, 61023, Ukraine)

*Currently, coke plants are experiencing a shortage of absorbent oil for capturing benzene hydrocarbons. This forces the companies to limit the capacity of regeneration units, which leads to an increase in oil density. At the same time, the content of substances insoluble in toluene increases in the oil, which creates a complex multicomponent dispersed system. In the case of replenishment of the circulation cycle with light fresh foreign-made oils, which are artificial mixtures of fractions obtained during the distillation of coal tar, there is a risk of precipitation as a result of flocculation of dispersed particles. There is a need to assess the probability of precipitation of the absorbing oil using additional methods. In this paper, evidence of the colloidal structure of the absorbent oil is reviewed, showing its tendency to flocculate when aliphatic solvents and other reagents are added. The ability to form a heterogeneous blot of a mixture of oils and their solvents was evaluated according to the method available in the literature. This method was applied to mixtures of fresh foreign-made absorbent oil and polymers from the benzene department. The results showed the absence of heterogeneous blot formation using this method. An assessment of the spreading area of equivalent drops by volume showed that the deterioration of the properties of fresh oil occurs already at the introduction of 8% of polymers of the benzene department. A mixture of crude benzene components with working absorbent oil forms a heterogeneous spot when 60 % o-xylene is added. This makes it possible to calculate the flocculation coefficient and quantify the effectiveness of measures to improve the quality of recycled oil. The data obtained are consistent with the list of solvents available in the literature that cause and do not cause flocculation of dispersed particles in tar and its fractions.*

Keywords: washing oil, precipitation, dispersed substances, solvents, flocculation, coagulation.

Corresponding author: Artem L. Bannikov, e-mail: [artiksmartik@gmail.com](mailto:artiksmartik@gmail.com)