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Thermochemicaldemulsification of the crude oil emulsions by some nonionic surfactants

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Water-in-oil emulsions form during production of crude oil which is often accompanied by mixing with underground water. Under the production conditions, a proportion of this water is dispersed throughout the crude oil as small droplets. In order to minimize the production problems related to crude oil emulsions and prevent corrosion processes of oil pipelines, it is necessary to break down these emulsions. The presence of water in crude oil is undesirable and can increase the cost of transportation because of chloride salts content in aqueous phase of emulsion. The aim of our research is to study the influence of nonionic surfactants based on alkoxylatedalcholos on the thermochemical dehydration of oil from North-West Konys field of Kazakhstan. The bottle test was carried out on the model emulsion with different water content (30-60%). Thermochemical dewatering was investigated at temperature from 40°C to 60°C. The commercial nonionic surfactants – block copolymers of ethylene oxide and propylene oxide – BASAROL PE 6100, BASAROL RPE 3110, BASOROL PE 6400 ("BASF", Germany) and Tween 20, Tween 80 were used as demulsifiers. Nonionic surfactants do not produce counter ions because of neutrality, therefore there is no corrosion effect at using them. According to the results Basorol PE 6400 shows better demulsifying effect, dewatering degree equals to 82.01% (T=600C). The demulsifying action is connected with their interfacial adsorbing capability according to their hydrophilic-lypophilic balance. The addition of benzene solvent favored the growth of destabilization at low temperature, W=80% at 400C.

Biography

Akbota Adilbekova has graduated from Al-Farabi Kazakh National University in 1995. She is an Associate Professor in the Department of Analytical, Colloid Chemistry and Technology Rare Elements. She has published more than 35 papers in different journals and conference proceedings. Her research area includes surface science, surfactant complex formation at the liquid interfaces, disperse systems, formation and destabilizationof oil emulsions.

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