THERMOCHEMICAL DEMULSIFICATION OF WEST KAZAKHSTAN OIL BY POLYOXYETHYLATED

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The quality of oil and oil products depends on the oil nature and other factors such as amount of water, salt and mechanical impurities. An particular volume of water accompanied the daily production of some 60 million barrels of crude oil with water [1]. Demulsification (emulsion breaking) is necessary in many practical applications as the oil industry and waste water treatment in environmental technology. The emulsion stability results from the presence of interfacial barrier preventing coalescence of the dispersed water droplets. The most effective method to overcome the problem is to demulsify the crude by using demulsifiers [2].

This paper presents the effect of demulsifying compositions based on polyoxyethylated compounds for oil from Mangistau region (West Kazakhstan). The thermochemical dewatering was carried out at temperature from 400C to 800C. The water amount was identified by using Dean-Stark method. The sample of oil contents 22,3% of water. IR-spectrum data prove the amount of water in this oil. The micro-pictures obtained by optical microscopy show the size of water droplets equal to 5-25 mkm.

Demulsification of the crude oil is a primary processing of oil involving dewatering and desalting of oil. Demulsification is an important problem for Republic of Kazakhstan because our country is one of great oil produsing one. West Kazakhstan oil (Zhana Uzen field and others) differs by high density and stability due to high molecular surface active components: high molecular paraffines, resins and asphaltenes. It was confirmed by gas chromatography data.

The composition based on block copolymers of ethylenediamine showed W=1,32% dewatering. The most optimal ratio in compositions is 1:1. Demulsifiers are dissolved in kerosene and benzene. Maximum result was obtained with using the following composites: PE 6100: RPE (1:1) – W=51,95%, Basorol 150 R1 : RPE6100 (1:1) – W=47,62%, where PE 6100 : RPE, Basorol – are block copolymers based on alcohols and diamines.

References

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