

LABORATORY FACILITY FOR OBTAINING A COMPOSITION OF VISCOSITY REDUCER FOR HEAVY OILS

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Abstract: *we all know that the world's reserves of hard-to-recover oil are growing every day, especially heavy oils with high viscosity. The extraction of such oils by traditional methods is almost impossible and will lead to a decrease in the oil recovery factor. Transportation of such oils is also carried out by special (thermal, chemical, etc.) methods. To reduce the viscosity of abnormal oils, a number of soap-like surfactants such as soapstock, saponified fatty acids, etc. have been tried in practice. Therefore, it is important to obtain surfactants from natural and synthetic raw materials and use them to reduce the viscosity of high-viscosity oils is of great importance. In our work, we studied a laboratory installation for the production of depressants and their compositions with different compositions for the transportation of heavy oils.*

Keywords: *high viscosity oils, paraffins, ceresins, resins, asphaltenes, mechanical impurities, viscosity reducers, compositions, laboratory setup, fluidity.*

ЛАБОРАТОРНАЯ УСТАНОВКА ДЛЯ ПОЛУЧЕНИЯ СОСТАВА ПОНИЗИТЕЛЯ ВЯЗКОСТИ ДЛЯ ТЯЖЕЛЫХ НЕФТЕЙ

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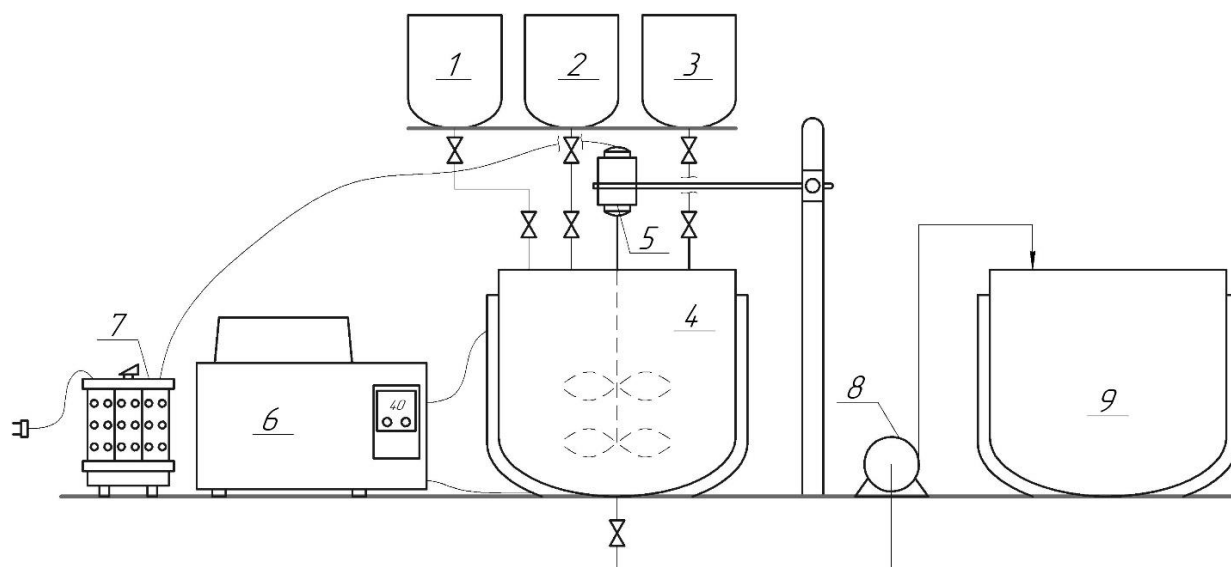
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Аннотация: *всем нам известно, что в мире каждый день растут запасы трудноизвлекаемой нефти, особенно тяжелые нефти с высокой вязкостью. Добыча таких нефтей традиционными методами почти невозможно и приведет к снижению коэффициента извлечения нефти. Транспортировка таких нефтей также производится специальными (тепловые, химические и т.д.) методами. Для снижения вязкости аномальных нефтей на практике испробованы ряд мылоподобных ПАВ типа соапстока, омыленных жирных кислот и др. Поэтому важно получать ПАВ из натурального и синтетического сырья и использовать их для снижения вязкости высоковязких нефтей.. В нашей работе мы изучали лабораторную установку для получения разными составами депрессантов и их композиций для транспортировки тяжелых нефтей.*

Ключевые слова: *высоковязкие нефти, парафины, церезины, смолы, асфальтены, механические примеси, понизители вязкости, составы, лабораторная установка, текучесть.*

The high viscosity of oils is due to the content of solid compounds in it, which form various layers that prevent the movement of oil along the inside of pipelines. These include: paraffins, ceresins, resins, asphaltenes, mechanical impurities, sulfur-containing compounds and other dispersed substances [1, 2]. In each field where oil is transported through the pipeline, standard analyzes are carried out to select the appropriate viscosity reducers and the conditions for their use. At the same time, in parallel, it is necessary to determine the physicochemical and other indicators of the used viscosity reducers for high-viscosity and heavy oils [3-5].

A laboratory setup for obtaining a composition of viscosity reducers for local high-viscosity oils is shown in fig. 1.



1, 2, 3 - collection; 4 - mixer; 5 - electric motor; 6 - water bath with pump;
7 - LATR; 8 - pump; 9 - tank finished composition

Fig. 1. Laboratory unit for the preparation of a composition of viscosity reducers for heavy oils

This laboratory unit functions as follows: from collectors 1, 2 and 3, a mixture of phospholipids, cotton soap stock and gas condensate flow by gravity into mixer 4, where it is mixed with an electric motor 5, where the speed is controlled by LATR 7. The temperature of the process of obtaining the composition is adjusted using a water bath with pump 6. The finished composition is supplied by pump 8 to tank 9.

Thus, the mounted laboratory unit made it possible to obtain a composition for increasing the fluidity of local high-viscosity oils by reducing their viscosity.

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