

Studies dehydration of sludge of Bukhara and Kukdumalak NPZ for obtaining water and sludge fuel oil suspension (WSFOS)

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Изучение обезвоживания нефтешламов Бухарского и Кукдумалакского НПЗ для получения водо-нефтешламовой топливной суспензии (ВНТС)

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Abstract: the process of dehydration of waste oil refining of Bukhara and Kokdumalak NPZ - of oil sludge studied by thermal evaporation. The data show that for complete removal of water from the bottom and the middle layer sufficient oil sludge 2 and 3 hour heat treatment, and sufficient for the upper layer 1 hour. This is because the relatively low (to 17 %) in the upper layer of oil sludge water content and therefore its complete removal enough 1 hour.

Аннотация: изучен процесс обезвоживания отхода нефтепереработки Бухарского и Кокдумалакского НПЗ – нефтяного шлама методом термического испарения. Полученные данные показывают, что для полного удаления воды из нижнего и среднего слоя нефтяного шлама достаточно 2-х и 3-х часовая термическая обработка, а для верхнего слоя достаточно 1 часа. Это объясняется тем, что в верхнем слое нефтяного шлама содержание воды сравнительно низкое (до 17 %), и поэтому для её полного удаления достаточно 1 часа.

Keywords: oil, oil sludge, thermal evaporation, water content, dehydration, the Bukhara and Kokdumalak NPZ.

Ключевые слова: нефть, нефтяной шлам, термическое испарение, содержание воды, обезвоживание, Бухарское и Кокдумалакское НПЗ.

Currently, oil slime barns and refineries of the republic has accumulated large reserves of toxic waste - oil sludge, which do not find practical application. The main reason for the arisen situation is the absence of effective technology utilization of oil sludge that leads to a real threat of toxic environmental contamination of soils, groundwater, surface atmosphere et al. [1, 2].

In this paper, the purpose of obtaining water and oil sludge fuel suspensions conducted research by dehydration of waste oil refining - oil sludge of Bukhara and Kokdumalak Oil Refinery (NPZ) by thermal evaporation. All studies were conducted according to generally accepted State standards (GAST) analysis of oil, oil products, refined waste.

Number of refined waste oil and gas industry of the country varies widely. So, the whole industry for 2015 it amounted to about 10.0 thousand tons, while the share of liquid waste accounts for 70%, pasty and solid – 30 %. A number of companies having in its composition of large objects of transportation and gas processing, are the sources of the formation of substantial quantities of oily waste, which according to their characteristics can not be regarded as secondary material resources and are subject to disposal. The amount of waste generated in individual enterprises ranges from 578 tonnes / year up to 2510 tonnes / year [3].

It is known that in the oil sludge of Bukhara and Kokdumalak NPZ water content ranges from 42 % to 82 % and from 6 % to 38 %. The experiments to determine the water content in the oil sludge collected samples showed that the water content in the upper layer of oil to sludge – 17 % and 6 %, to the lower layer – 82 % and 38 %. For of dehydration of oil sludge taken from its different layers were used methods of thermal evaporation and demulsification.

Evaporation of water included in the composition of oil sludge cuttings carried by gradual heating depending on the heating time. For this sample selected from three different of oil sludge layers (upper, middle and lower) in an amount of 100 ml was evaporated at a temperature of 65-70 ° C with gradual increase in thermal treatment time of 10 to 180 minutes.

The data obtained show that for complete removal of water from the lower and the middle layer sufficient of oil sludge 2 and 3 hour heat treatment, and sufficient for the upper layer 1 hour. This reason is that relatively low (to 17 %) in the upper layer of oil sludge water content and therefore its complete removal enough 1 hour.

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