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THE STUDY OF THE COMPOSITION AND PROPERTIES OF WATER-OIL EMULSIONS FORMED FROM LOCAL OILS AND METHODS FOR THEIR DESTRUCTION

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ABSTRACT: - The continuous increase in oil production and refining around the world requires the improvement and intensification of the processes of dehydration and desalting through the use of non-traditional methods of external influence, incl. electrophysical. This is dictated by the fact that in recent years oil-water emulsions with high stability, which are difficult to destroy even at the high costs of expensive imported demulsifiers, have often been supplied to oil treatment plants (OTPs).

KEYWORDS: Oil refining, water-oil emulsions, demulsifier, asphaltenes, paraffin, resins, mechanical impurities and mineral salts, industrial processing.

INTRODUCTION

A feature of oils produced in Uzbekistan is their high content of emulsifying substances (asphaltenes, paraffin, resins, mechanical impurities and mineral salts), which form highly stable oil emulsions (HOE) [1-7].

The use of an effective method for the destruction of the resistant armour shell of water globules (droplets) will undoubtedly reduce the time of dehydration of stable HOE and desalting of oils [8-11].

METHODS

In oil production processes, formation water, associated gas and other emulsifying substances are simultaneously extracted from wells, which form HOE with varying degrees of stability [12-17].

Less stable HOE at rest is stratified under the action of gravitational forces into water, oil and associated gas components. Often, in practice, the process of HOE separation can proceed under certain conditions for a long time (more than 24 hours), and when it passes into a colloidal solution, it does not separate at all [1].

The joint movement of oil and water in the bottom-hole formation zone, the wellbore and the collection system lead to their mixing with the formation of HOE with different dispersion and stability. It is known that HOE is divided into two types: "oil in water" (O/W) and "water in oil" (W/O) [14-19].

Here, the type of emulsion depends on which phase is the dispersion phase. Stable HOE has globules of the dispersed phase with a diameter of 1.0 to 1000.0 μm. At the same time, colloids that are difficult to destroy have globules with a size of fewer than 0.1 μm, water globules with a diameter of more than 1000.0 μm are not retained in the emulsion and settle to the bottom [2].

It should be noted that the air pumped into the well instead of gas, which oxidizes part of the heavy hydrocarbons with the formation of asphalt-resinous substances, which provide high stability of the HOE, has a particularly negative effect. At present, there are 24 oil preparation units for industrial processing in Uzbekistan, where HOE with different resistance is thermochemically dehydrated and desalted. At the same time, in almost all OTUs, an imported demulsifier is used, for example, K-1 (PRC), which is consumed depending on the type of dehydrated emulsion.

Moreover, the excess consumption of the demulsifier in some cases gives the opposite "effect" i.e. a new stable HOE is formed, which is difficult to destroy.

CONCLUSION

Statistical analysis for 2021 using the example of the Kokdumalak OPF showed that losses from evaporation in separation units exceed 2.25% and oil dehydration and desalting more than 0.015%. In total, losses at this facility amounted to 3.86% or approximately 10,000 tons of oil per year.

Therefore, an individual approach to the dehydration and desalting of stable HOE is considered justified today when preparing oils for industrial processing.

REFERENCES

1. Каспарьянц, К. С. (1973). Промысловая подготовка нефти и газа. М.: Недра, 376, 5-3.

2. Лутошкин, Г. С. (1972). Сбор и подготовка нефти, газа и воды к транспорту. М.: Недра.
3. Хакимов, А. А., Салиханова, Д. С., & Каримов, И. Т. (2019). Кўмир кукунидан брикетлар тайёрлашнинг долзарблиги. Фарғона политехника институти илмий техника журнали.-2019.-№, 23(2), 226-229.
4. Хакимов, А. А., Салиханова, Д. С., & Каримов, И. Т. (2018). Кўмир кукунини брикетловчи қурилма. Фарғона политехника институти илмий техника журнали.-2018.-№ спец, 2, 169-171.
5. Хакимов, А. А. (2020). Связующее для угольного брикета и влияние его на дисперсный состав. Universum: химия и биология, (6 (72)), 81-84.
6. Хакимов, А. А., Салиханова, Д. С., Абдурахимов, А. Х., & Жумаева, Д. Ж. (2020). Использование местных отходов в производстве угольных брикетов. Universum: химия и биология, (4 (70)).
7. Axmedovich, X. A., & Saidakbarovna, S. D. (2021). Research the strength limit of briquette production. Asian Journal Of Multidimensional Research, 10(5), 275-283.
8. Хакимов, А. (2020). Технология брикетированного угля. Матеріали конференцій МЦНД, 76-78.
9. Хакимов, А. А., Вохидова, Н. Х., & Нажимов, Қ. Кўмир брикети ишлаб чиқаришнинг янги технологиясини яратиш. Ўзбекистон республикаси олий ва ўрта махсус таълим вазирлиги Заҳириддин Муҳаммад Бобур номидаги Андижон давлат университети, 264.
10. Khakimov, A. A., Salikhanova, D. S., & Vokhidova, N. K. (2020). Calculation and design of a screv press for a fuel briquette. Scientific-technical journal, 24(3), 65-68.
11. Хакимов, А. А. (2021). Определение показателей качества угольного брикета. Universum: химия и биология, (5-2 (83)), 40-44.
12. Вохидова Н.Х. Хакимов А.А., Салиханова Д.С., Ахунбаев А.А. (2019). Анализ связующих из местного сырья для брикетированния углольной мелочи. Научно-технический журнал ФерПИ. Т.23, спец. №3. С. 69-74.
13. Хакимов, А. А. (2020). Совершенствование технологии получения угольных брикетов с использованием местных промышленных отходов: Дисс.… PhD.
14. Вохидова, Н. Х., Хакимов, А. А., Салиханова, Д. С., & Ахунбаев, А. А. Анализ связующих из местного сырья для брикетированния углольной мелочи. Научно-технический журнал ФерПИ.–2019.-Scientific-technical journal (STJ FerPI, ФарПИ ИТЖ, НТЖ ФерПИ, 2019, Т. 23, спец. № 3).–С, 69-74.
15. Xakimov, A., Voxidova, N., & Rajabov, B. (2021). Analysis of collection of coal brickets to remove toxic gas. Барқарорлик ва Етакчи Тадқиқотлар онлайн илмий журнали, 1(5), 85-90.
16. Xakimov, A., Voxidova, N., Rustamov, N., & Madaminov, U. (2021). Analysis of coal bricket strength dependence on humidity. Барқарорлик ва Етакчи Тадқиқотлар онлайн илмий журнали, 1(5), 79-84.
17. Xakimov, A., Voxidova, N., Rajabova, N., & Mullajonova, M. (2021). The diligence of drying coal powder in the process of coal bricket manufacturing.

Барқарорлик ва Етакчи Тадқиқотлар онлайн илмий журнали, 1(5), 64-71.

18. Xakimov, A., Voxidova, N., & Xujaxonov, Z. (2021). Analysis of main indicators of agricultural press in the process of coal powder bricketing. Барқарорлик ва Етакчи Тадқиқотлар онлайн илмий журнали, 1(5), 72-78.

19. Akhmedovich, K. A. (2021). The Diligence of Drying the Coal Dust in the Process of Obtainig the Coal Brickets. International Journal of Innovative Analyses and Emerging Technology, 1(5), 111-115.