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Research of emulsion properties of oil with selection of effective chemical reagents for destruction of arising emulsions

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Abstract

The presence of aggressive aqueous solutions of mineral salts leads to rapid wear of both oil pumping and refining equipment. Gas separation and preliminary water discharge are difficult. This is one of the reasons that it is necessary to dehydrate the oil emulsion from the moment it was formed, preventing its aging. The second most important reason for oil dehydration in the areas of its production is the high cost of transporting ballast-produced water.

To determine the most suitable demulsifier used at the Tsarichansk field, a series of laboratory studies was conducted.

According to the results of laboratory tests, it was found that the developed new multifunctional composite demulsifier Denmaster 3010, due to the synergism of the components that make up the composition, shows good dynamics of sediment compared to the base reagents and provides a high degree of emulsion destruction.

According to the results of laboratory studies, the most effective in comparison with the basic reagent, both in the dynamics of dehydration and in the residual water content, is the multifunctional composition DenMaster 3010.

Reagent DenMaster 3010 is composite demulsifier based on a mixture of organic and aromatic solvents with the addition of nonionic surfactants.

Laboratory tests showed that DenMaster 3010 reagent provides a high degree of emulsion destruction at the stages of in-tube demulsification and preliminary discharge. According to the data obtained, when replacing the base reagent with the DenMaster 3010 reagent, at the stages of oil collection, stabilization and a decrease in the average values of water and salt content are observed, i.e. installation work is normalized.

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