

Influence of particle size distribution of the filtering loading on the size of particles of a disperse phase of an emulsion

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Abstract

© 2018 Authors. Oil emulsions are formed in the course of oil production, transportation, storage and a wash of oil tanks. Some oil emulsions are highly dispersed and rather stable for division by methods of upholding, centrifugation and flotation. In work for effective division of an oil model emulsion the method of a contact coalescention received the filtering loadings from a granular and porous polytetrafluoroethylene (PTFE). Speed of filtration of a model oil emulsion through the filtering loading depending on the size of granules of PTFE is determined. Extent of division of an emulsion at filtration through loading with a size of granules of 0,5 mm of high, 89% for porous and 74,4% for granular PTFE, but with increase in the size of granules of the filtering loading extent of division of an emulsion decreases. The initial model emulsion is polydisperse system with sizes of particles of 567 - 3315 nanometers. After filtration through PTFE granules the size of particles of a disperse phase decreases, particles of oil coalesce and are late in a time, in a surface and space between granules. It is confirmed by formation of oil slicks on the surface of the filtering loading. And the size of granules of the filtering loading is less; the size of particles in an emulsion filtrate is less. By results of a research influence of particle size distribution of the filtering loading on the size of particles of a disperse phase of a filtrate of an emulsion is defined.

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Keywords

And granules, Coalescence, Coalescing filter, Filter loading, Oil emulsion, Particle size, Polytetrafluoroethylene, Zeta potential

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