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Electrokinetic Phenomena of Modified Polytetrafluoroethylene Membranes in the Oily Sewage from Oil Field

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Author(s)

Aiguo LIN, Yihua YAO, Gang LIU, Guozhong ZHANG, Xiufeng LIN

ABSTRACT

Experimental investigations of electrokinetic phenomena of modified polytetrafluoroethylene membranes in the oily sewage from oil field were performed by using the streaming potential method. The zeta potentials of the membranes in the oily waste water are estimated on the basis of Helmholtz—Smoluchowski equation. The experiment and calculation results show that the membranes are charged negatively, whose zeta poten-tials maintain at around -20mV. And the aperture of membranes, the temperature and the filtration flux have little influence on the streaming potentials and the zeta potentials of the membranes. Also the suspended particulates in the oily sewage are charged negatively. The membranes have strong ability to withhold the suspended substance and powerful antipollution competence because of the role of the charges on the mem-branes.

KEYWORDS

Oily Sewage, Membrane, Electrokinetic Phenomena, Streaming Potential, Zeta Potential

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