

Online Oil Content Monitor for Optimization of Oily Waste Water Treatment Process with Tubular Ceramic Membranes

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Abstract

Oil and gas industries generate large amounts of wastewater as a byproduct in both onshore and offshore production operations. This kind of wastewater is commonly referred to as “produced water” (PW). It is very difficult to treat and its characteristics changes by well to well. Treatment of PW could improve the economic viability of oil and gas fields and lead to a new source of water for beneficial use. In general, produced water treatment is approached through deoiling and de-mineralizing before its disposal or utilization. Various technologies and methods exist for treatment of oil field produced water. Most oil removal technologies cannot achieve the separation required to meet water quality standards. The use of ceramic membranes for treatment of wastewaters is growing in certain applications and above all in those filtration processes where polymeric membranes cannot be applied.

The study presented here focuses on a) the efficient development of single and combined membrane treatment processes for oilfield produced water using tubular ceramic membranes (MF/UF/NF) and b) real time measurement of oil content in treated/untreated produced water streams using a new generation of oil-in-water monitoring system based on the light scattering technique. In this research study, the flux behavior and separation capability of tubular ceramic membranes for oil, organic substances (measured as TOC) and inorganic substances (measured as the electrical conductivity (EC)) is shown.

References

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