

OIL REMOVAL FROM OILY WASTEWATER BY USING ADSORPTION PROCESS

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Due to the increasing amounts of produced water during oil production in Kuwait, the establishment of wastewater treatment unit for produced water re-injection purposes had become essential. It is estimated there that oil wells generate in quantity of 15 to 40% of produced water. The unit consists of surge tank, oily water treatment, and oil drum. The conventional oily water treatment comprises of parallel/corrugated plate separator and induced gas flotation. The main objective of this treatment train is reduce the oil in water concentration from 2000 to 10 ppm, the maximum allowable concentration for reinjection and disposal.

The objective of the current study was assessment of oil removal from oily wastewater by using adsorption process. In such technique various adsorbents (BoniFiber, Organoclay, Walnut Shell and Activated Carbon) were used to measure its potential for the removal of oil from oily wastewater. The results showed that BoniFiber is the best adsorbent. The kinetic studies showed that equilibrium time was reached within 1 to 2 hours of contact time. The efficiency of the removal of oil from oily wastewater arranged between 96 to 98% depending on the adsorbent.

Keyword: adsorption, oily wastewater, adsorbents, produced water