Removal of Chromium from Waste Water by Using Reverse Osmosis with AG, SWHR, SE and SG Membrane

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The removal of chromium from waste water obtained from chromium-coating application was investigated by using reverse osmosis (RO) technique using FILMTEC SWHR (sea water high rejection) and GE OSMONICS AG, SE and SG (high rejection brackish water) membranes. The effect of pH and concentration of the feed water and operating pressure on the chromium rejection was also investigated. Chromium rejection was dependant on membrane type, pH of the feed water and operating pressure. pH of feed water was found 3 to be optimum effective removal of chromium. The lowest permeate chromium concentration (96% highest rejection), was obtained with AG membrane. The rejection efficiency of the membranes was found to be in the order of AG > SWHR > SG > SE. For all membranes, chromium rejection increased with increasing operating pressure. RO could be efficiently used (with > 91 % rejection) for the removal of chromium from waste water sample.

Keywords: Chromium removal, Reverse osmosis, Membrane, Heavy metals.

Grafiksel Özet

Permeate fluxes for natural samples chromium concentrations of samples from wer 7542 mg/L, pH of feed water: 6.01, operating pressure: 20 bar, temperature: 20 °C , for AG membrane.

References