

Kowalska, I. Use of Ceramic Ultrafiltration Membranes for the Removal of Surfactants from Water Solutions. *Ochrona Srodowiska* 2011, Vol. 33, No. 1, pp. 41–45.

Abstract: Tubular ceramic membranes made of titanium and zirconium dioxides were tested for transport and separation properties with respect to the aqueous solutions of an anionic surface-active substance (sodium dodecylbenzenesulfonate, SDBS). Examined was the problem of how the concentration of SDBS in the feed solution, the molecular weight cut-off (MWCO) of the membranes, and the process conditions influence the efficiency of ultrafiltration performed in a cross-flow system. It has been demonstrated that the separation system involving ceramic membranes provides a sufficiently high SDBS removal from water solutions. Within the range of the SDBS concentrations examined, it has been observed that the membranes were susceptible to fouling, and that this susceptibility increased with the increase in the MWCO value. The effect of the process conditions (transmembrane pressure and cross-flow velocity of the feed solution at the membrane surface) on the transport and separation properties of the ceramic membranes was also found to be of significance. The study has revealed that ceramic ultrafiltration membranes provide a stable operation of the separation system under conditions of long-term filtration.

Keywords: Surfactant, pressure-driven membrane process, inorganic membrane.