

**Kabsch-Korbutowicz, M., Urbanowska, A. Applicability of Ceramic Membranes to the Removal of Natural Organic Matter from Water. *Ochrona Srodowiska* 2009, Vol. 31, No. 1, pp. 15–19.**

**Abstract:** The efficiency of removing natural organic matter (NOM), one of the major micropollutants of surface waters, depends to a great extent on the properties of the membranes used, such as the cut-off and the material of which they have been made. In the past decade the use of membranes manufactured from inorganic materials has become increasingly frequent in water and wastewater treatment. The aim of the study was to assess the applicability of ceramic membranes to water treatment, particular consideration being given to NOM removal. The efficiency of the treatment process was examined by experiments using samples of riverine water (from the river Odra) and model solutions, and two ceramic membranes (with a cut-off equal to 15 kDa and 50 kDa, respectively), at transmembrane pressure varying from 0.2 to 0.5 MPa. The results obtained have substantiated the significant influence of transmembrane pressure and membrane cut-off on the hydraulic efficiency of the membranes. The rise in transmembrane pressure or membrane cut-off accounted for the increase in the value of the permeate flux. The membranes used were found to be prone to fouling, but this proneness was more pronounced in the case of the 50 kDa membrane. The fouling effect was concomitant with the rise in the total resistance of the membranes. The study has demonstrated that the use of ceramic membranes provides efficient NOM removal from surface water. As a result of the stronger fouling observed in the case of the less compact 50 kDa membrane, the efficiency of organic macromolecule separation with this membrane was higher than the one obtained with the 15 kDa membrane.

**Keywords:** Ultrafiltration, inorganic membrane, fouling, water treatment, natural organic matter.