

MEMBRANE TECHNIQUES IN THE REMOVAL OF INORGANIC ANIONIC MICROPOLLUTANTS FROM WATER ENVIRONMENT– STATE OF THE ART

MICHAŁ BODZEK, KRYSZYNA KONIECZNY

Abstract: A number of inorganic compounds, including anions such as nitrate(V), chlorate(VII), bromate (V), arsenate(III) and (V), borate and fluoride as well as metals forming anions under certain conditions, have been found in potentially harmful concentrations in numerous water sources. The maximum allowed levels of these compounds in drinking water set by the WHO and a number of countries are very low (in the range of $\mu\text{g/l}$ to a few mg/l), thus the majority of them can be referred to as charged micropollutants. Several common treatment technologies which are nowadays used for removal of inorganic contaminants from natural water supplies, represent serious exploitation problems. Membrane processes such as reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF) and microfiltration (MF) in hybrid systems, Donnan dialysis (DD) and electrodialysis (ED) as well as membrane bioreactors (MBR), if properly selected, offer the advantage of producing high quality drinking water without inorganic anions.