



Removal of refractory compounds by ultraviolet and anodized TiO₂ metal membrane with reactive nano-sized cylindrical tubes on its surface

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ABSTRACT

We investigated the treatment performance of conventional membrane separation, UV irradiation, UV/O₃ system and UV/anodized TiO₂ membrane technology for the removal of *N*-Nitrosodimethylamine (NDMA) from water. The RO membrane did not prove to be effective for NDMA removal. The UV/anodized TiO₂ membrane process decomposed almost 100% of NDMA in the range of all NDMA concentrations. UV/A-Ti-M system was achieved the complete removal of NDMA within 20 mg l⁻¹ of NDMA concentration, indicating that the UV/anodized TiO₂ membrane process is a promising treatment technology for treating NDMA contaminated water. With regards to by-products, DMA yield increased with an increase in initial NDMA concentration, whereas MA yield decreased.

Keywords: Anodization; NDMA; Reverse osmosis; TiO₂; UV irradiation; Ozone; By-products

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