

**Grochowicka, W., Swiderska-Broz, M., Wolska, M. Efficiency of the Micro-Sieve Process Towards the Removal of Phytoplankton Organisms and Some Chemical Pollutants from Surface Water. *Ochrona Srodowiska* 2009, Vol. 31, No. 2, pp. 25–30.**

**Abstract:** The aim of the study was to assess the efficiency of the micro-sieve process when used for the treatment of blooming surface water which is taken in for municipal supply. The water is characterized by a large number of phytoplankton organisms, specifically blue-green algae (*Cyanophyta*) and diatoms, as well as by a high colored matter content, a high turbidity, and a high content of organic compounds expressed as TOC. The research has produced the following findings. The micro-sieve process efficiently reduced the number of the phytoplankton organisms, and the extent of removal depended on the type and number of the microorganisms that were present in the water being treated. The removal of cyanobacteria accounted for the reduction in the concentration of microcistine LR. In addition, the micro-sieve process brought about a reduction in turbidity (to 82%), color intensity (to 40.8%) and TOC concentration (to 17.8%), as well as contributed to the oxygenation of the water and a slight increase in the pH. The efficiency with which the microorganisms were removed had an influence on the removal of the pollutants adsorbed on their surfaces. The micro-sieve process failed to exert a substantial effect on the content of inorganic pollutants ( $\text{NH}_4^+$ ,  $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$ ). The study has demonstrated that the application of the micro-sieve process without reagents to the pretreatment of algae-containing surface water is justified; it not only decreases the quantity of the precursors of oxidation by-products and reduces the demand for chemical reagents, but also diminishes the scale of technological and operating problems that are to be coped with at further stages of the water treatment process.

**Keywords:** Surface water, water treatment, micro-sieve, diatoms, blue-green algae (*Cyanophyta*), microcistine, chemical pollutants.