

# **Seasonal occurrence of T&O and micro pollutants in drinking water sources – evaluation of treatment strategies using oxidation and biological active filtration**

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## **Abstract**

Ozone and advanced oxidation processes based on ultraviolet light, ozone and hydrogen peroxide have proven their reliability and efficiency in removing taste and odor causing compounds and micropollutants in several full scale installations worldwide. In Australia plants using a combination of ozone and BAF are operating in NSW and QLD since 15 years. Some of these containments only occur for a few months in the raw water source due to agricultural activities or algae blooms. Recent studies indicated the synergistic effect of combining these oxidation technologies with biological active filtration leading to a more robust multiple barrier approach against algae related T&O compounds and toxins. The aim of this work is to provide guidance for the evaluation of the optimal treatment train in dependence of the site specific requirements and conditions. For this the results of international bench and pilot studies as well as data from full scale installations were reviewed to identify the synergistic effects of combined treatment steps as well as the impact on the life cycle costs of the different solutions.

**Key-words:** Advanced oxidation; AOP; T&O; Micro Pollutants; BAF; CAPEX; OPEX;