

Summary

The polycyclic musk fragrances AHTN (Tonalide) and HHCB (Galaxolide) are the most common components of cosmetics and detergents. Use of AHTN and HHCB per year (in the USA and in EU) was estimated at 1500 Mg and 3800 Mg, respectively. Because of their persistent character, musk compounds are introduced into environment mostly via urban sewage treatment plant effluents. The aim of the presented research was to assess the receptivity of AHTN and HHCB to the oxidation by means of UV-radiation and in the UV/H₂O₂ process. The investigations were performed in the treated wastewater and the drinking water. After 8 minutes, in all experiments performed on drinking water, the degradations of AHTN and HHCB in the range of 99% were observed. The removal of HHCB from wastewater by means of UV radiation exceeded up 93% (after 8 minutes of the process), whereas the disappearance degree of this compound in wastewater, after only 3 minutes of UV/H₂O₂ process, exceeded 99%. The degradation constant rate for AHTN in drinking water using UV radiation was equal to 0.764 min⁻¹ when the degradation rate of HHCB was estimated at 0.634 min⁻¹. In the wastewater, the coefficient rate of HHCB degradation by means of UV/H₂O₂ was nearly 4.5 times higher (1.580 min⁻¹) in comparison to the value obtained by direct photolysis of HHCB (0.354 min⁻¹).