

### Application of Adsorption-DAF Hybrid Process for the Simultaneous Removal of Algae and Organics in Water

최도영, 정홍조, 곽동희, 김성진<sup>1</sup>, 이재욱\*  
서남대학교; <sup>1</sup>한영대학교  
(jwlee65@seonam.ac.kr\*)

Removal of taste and odor compounds produced from the blue-green algae in drinking water is a significant concern worldwide. It has been well known that powdered activated carbon (PAC) can effectively remove organics and dissolved air flotation (DAF) is an effective solid/liquid separation process for low-density flocs of algae, color-alum and clay-alum. In this work, a new hybrid process with PAC adsorption and DAF was investigated as a simultaneous removal technology for algae and PAC adsorbed organic pollutants (i.e., taste and odor compounds). The collision efficiency between bubble and particle to evaluate flotation efficiency in DAF, was calculated from trajectory analysis using the hydrodynamic and interparticle forces. Based on the experimental and theoretical results obtained, it was evident that the hybrid system consisting of adsorption and DAF can be effectively applied for the simultaneous removal of dissolved organics and suspended solids in water.