

## Efficiency of enhanced coagulation for removal of NOM and for adsorbability of NOM on GAC

Seongho Hong<sup>a\*</sup>, Sungjin Kim<sup>a</sup>, Chulho Bae<sup>b</sup>

<sup>a</sup>Department of Chemical and Environmental Engineering, Soongsil University, Seoul, Korea  
Tel. +82 (2) 820-0628; Fax +82 (2) 812-5378; email: shong@ssu.ac.kr

<sup>b</sup>Korea Water Resource Co., Korea Institute of Water and Environment, Daejeon, Korea

Received 30 July 2007; accepted 14 September 2007

---

### ABSTRACT

NOM is known as a precursor to produce disinfection by-products such as THMs and HAAs in drinking water treatment. In this study, NOM removal and THMs reduction were investigated by comparing the conventional coagulation with enhanced coagulation using jar-test. Additionally coagulation efficiency was studied on activated carbon adsorption using adsorption isotherms for natural waters. The experimental data were simulated with IAST to investigate adsorbability of the NOM as multi-components isotherms. The results showed that enhanced coagulation could reduce 10–30% more of DOC and 5–20% more of THMs, respectively, than those of conventional coagulation. Adsorption capacity on activated carbon revealed that the enhanced coagulation had the highest capacity, followed by the conventional coagulation and raw water. The order of adsorption capacity can be explained by increase of strong adsorbable fraction and decrease of initial DOC concentration in enhanced coagulation.

*Keywords:* GAC; NOM; Adsorption; Enhanced coagulation

---

---

\* Corresponding author.

Presented at IWA Efficient 2007, May 20–23, 2007, Jeju, Korea.