

# **Reduction of Natural Organic Matter and Disinfection By-Product Precursors by Coagulation and Adsorption**

張怡怡

**Chang EE;Chiang PC;Chao SH;Liang CH;**

摘要

## **Abstract**

Source water from King-Men Reservoir water in Taiwan was treated by alum and polyaluminum chloride coagulation, and the corresponding natural organic matter was fractionated by ultrafiltration membranes for determining its molecular weight (MW) distribution to provide the baseline information for further investigation. Due to the characteristics of the source-water nature, a lower alum dosage could reduce the total organic carbon (TOC) concentration by a great amount (25%), while the difference in TOC removal efficiency was found to be insignificant at a higher dosage (60-90 mg/L) and even operating in a lower pH range. The results show that the larger MW coagulant polyaluminum chloride, having higher-charge neutralization and bridging capacities, exhibits better performance than the lower MW alum. In addition, the granular-activated carbon-adsorption process provides a relatively lower THMFP in the treated water at the same level of trihalomethanes and to lower the coagulant doses demand as well.