

**REMOVAL OF NATURAL ORGANIC
MATTER (NOM) FROM SURFACE WATER
BY COAGULATION AND ADSORPTION**

Ph D DISSERTATION

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ABSTRACT

The water samples were collected from Ayeyarwady River near Bo Myat Tun Bridge in Nyaungdon Township, Ayeyarwady Division. The physical and chemical characteristics of river water were investigated from January 2005 to November 2006. Physical characteristics such as colour, turbidity, total solids (TS), suspended solids (SS) and dissolved solids (DS) were determined. Chemical parameters such as pH, conductivity, alkalinity, hardness, calcium, magnesium, chloride, sulfate, DO, BOD, COD and metallic elements were also investigated. In this study, the traditional analysis of chemical oxygen demand (COD) as a surrogate measure was performed to detect the organic constituents in raw water. Physical properties such as colour, turbidity and organic matter such as COD were found to be high in raw water. For these reasons, coagulation with alum was used for the removal of colour, turbidity and COD. Jar Test experiments were conducted to study the required alum dosage, pH of coagulation and alkalinity of the raw water. Coagulation was conducted at various alum dosages and pH conditions. From these experiments it was found that over 95 percent of colour and turbidity and 50 percent of COD were removed with alum dosages of 30 – 50 mg/L at pH 7.5 to 8.0. To enhance the removal of COD, coagulation was followed by adsorption. Granular activated carbon (GAC) was used as a filter medium for adsorption. Up to 91 percent of COD removal was obtained by the use of a combined treatment.

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REFERENCES