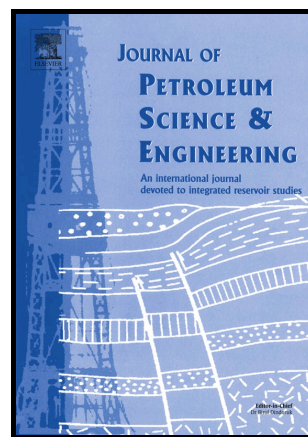


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# DETERMINATION OF THE OPTIMUM POLYMER DOSE FOR DEWATERING OF OIL SANDS TAILINGS USING UV-VIS SPECTROPHOTOMETRY

Asif M. Salam, Banu Örmeci\*, Paul H. Simms

Department of Civil and Environmental Engineering, Carleton University, 1125 Colonel By Drive, Ottawa ON K1S 5B6, Canada.

\*Corresponding author. Professor and Canada Research Chair. Tel.: +1 613 5202600x4144. banu.ormeci@carleton.ca

## ABSTRACT

The slow settling of fine clays in oil sands residuals results in the generation of very large amounts of fine tailings that must be stored in dammed impoundments. Dewaterability and settling of oil sands residuals can be greatly improved by adding synthetic polymers, which would help to minimize the volume of tailings. Adding polymers at the optimum dose is extremely important in terms of process efficiency as well as cost-effectiveness. The optimum dose, however, varies based on the changes in the composition and characteristics of the tailings and ideally should be adjusted on a continuous basis. This study evaluated the potential of a UV-vis absorbance based analytical method to measure the polymer concentration and determine the optimum polymer dose for achieving the best thickening and dewatering performance from oil sands tailings. At 190 nm, sample absorbance was found linearly correlated with the polymer concentration. The detection limit of the method for polymer A3338 (SNF) was established as 0.37 mg/L in reclaimed water, which showed the method has the sensitivity to detect very low polymer concentrations. Furthermore, the method was also used to determine the optimum polymer dose by monitoring the residual polymer concentration in tailings water. Any potential interference from fines, salinity and pH were also investigated and were shown not to have an

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