

Wannipa Nongpong 2007: Chemical Oxidation of Toluene in Saturated Zone Using Slowly Released Oxidizing Agent. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Assistant Professor Cheema Chomsurin, Ph.D. 111 pages.

Chemical oxidation of toluene was studied in saturated sand using potassium permanganate ( $\text{KMnO}_4$ ) that was released from organic matrix. Three organic materials used were volcano rock, paraffin wax and coconut ride. The releasing rate from solid  $\text{KMnO}_4$ . It was found that the solid  $\text{KMnO}_4$  attached to paraffin wax provide low and constant releasing rate which is suitable for toluene oxidation.

Experiment showed that when  $\text{KMnO}_4$  was released at Reynold number equaled where flow rate was 2 ml/min and pore volume was 49.87, toluene removed efficiency was 91.85.

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Thesis Advisor's signature

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