

Thesis Title Removal of Triphenyltin Hydroxide from Water by
 Adsorption on Activated Carbon

Name Piyanoot Pongprot

Degree Master of Science (Environmental Biology)

Thesis Supervisory Committee

 Pornsawan Visoottiviseth, Ph.D.

 Prapin Wilairat, Ph.D.

 Yuwadee Shiowatana, Ph.D.

Date of Graduation 30 September B.E. 2536 (1993)

Abstract

Removal of triphenyltin hydroxide (TPTH) in water using adsorptive filter media was studied. Three types of filter media e.g., Berkfield sand, commercial activated carbon and natural clay, were compared for their adsorptive capacity by column filtration method. Commercial activated carbon was found to be the best adsorbent, removing 97% of TPTH from water whereas Berkfield sand could only adsorb 10%. Natural clay column was not practical in this study because water could not pass through the column eventhough the suction aspirator was assisted. Adsorption capacity of activated carbon was determined by batch experiment. The activated carbon could adsorb at least 4 mg of TPTH per 1 g of activated carbon.

The used carbon was considered as a toxic waste material which need to be treated before discarding. In determining the amount of adsorbed-TPTH on the carbon particles, two methods of extraction of TPTH from TPTH-adsorbed carbon were carried out, shaking with toluene and soxhlet

extraction. Percentage of extraction obtained from these two methods were $6 \pm 1\%$ and $10 \pm 1\%$, respectively.

The degradation of TPTH from water by gamma irradiation was also investigated. The TPTH solution was prepared with distilled water or water from fish aquarium, concentrations of 1 ppm and 5 ppm, respectively. The solutions were irradiated with a dose of 0.5 kGy per 18 minutes. Half life of TPTH in water was found to be 44 ± 10 minutes or at the radiation dose of 2.4 kGy.