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: M.Sc. (ENVIRONMENTAL TECHNOLOGY)

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: LECHABILITY

JITRAT SRISUKHO : SOLIDIFICATION OF HAZARDOUS WASTES BY CEMENT AND SAND . THESIS ADVISOR : KOMOL SIVABORVORN, M.S. , M.P.H., DR.P.H. , SUWIT SHUMNUMSIRIVATCH, M.S.(Env.&Water Resources Eng.) , KRISANA TEANKAPRASITH, M.S. (Env. Health) , ANON POMPRASIT, B.Sc. , 111 p ISBN 974-589-178-9

The objective of this study was to eliminate sludge which contained heavy metal, nickel and chromium by means of solidification with cement and sand. Hazardous wastes from an electroplating industry were used. The investigation of the suitable proportion of hazardous wastes in the binder of solidification were studied. The compressive strength used as index of the solid followed the standard of Department of Industrial Works, Ministry of Industry. The leachability of heavy metals by the toxicity standard of Department of Industrial Works, Ministry of Industry was studied. The amount of nickel and chromium dissolved from solidified samples which were soaked in water at pH 4.5 and 5.8 for 5 days to 10 days were also studied.

The results showed that the compressive strength was found follow the standard and to decrease with the increasing of sludge/binder ratio. An increase in the strength was observed with greater curing time of the specimens. The appropriate ratio of the hazardous wastes in the binder of solidification was 1.5:1.0:2.5 by weight. Leachability of the solidified samples was found to be below the standard (less than 5 mg/l). It was also found that the amount of hazardous waste in leachate were proportional to waste in a solidified sample. The amounts of nickel and chromium which dissolved in water at pH 4.5 and 5.8 were statistically significantly different at $\alpha > 0.05$. The soaking times of 5 days and 10 days had statistically significant difference $\alpha < 0.05$ for the chromium dissolution, but the nickel dissolution had no significant difference .