

## **Removal of Cu and Pb from electroplating wastewater using tartaric acid modified rice husk**

### **ABSTRACT**

The potential of using tartaric acid modified rice husk (TARH) as a sorbent for the removal of Cu and Pb from semiconductor electroplating wastewater was investigated. Application of Langmuir isotherm indicated that there was no difference in the sorption capacity of TARH for Cu and Pb in synthetic solution and wastewater. A series of column studies were carried out. Increase in column bed depth yielded longer service time while increase in influent concentration and flow rate resulted in faster breakthrough. The sorption capacities of the TARH column for Cu and Pb agreed closely with the levels obtained from batch equilibrium studies. Theoretical breakthrough curves at different bed heights and flow rates generated using a two-parameter model agreed closely with experimental values in the treatment of semiconductor wastewater. In the regeneration study, Cu and Pb could be recovered almost quantitatively by eluting the column with 0.1 M HCl and the column could be used repeatedly for at least five cycles.

**Keyword:** Modified rice husk; Metal; Sorption; Wastewater