

## عنوان مقاله:

Removal of Pb<sup>2+</sup> and Cu<sup>2+</sup> from electroplating industry wastewater by waste tire rubber ash as a low-cost adsorbent

## محل انتشار:

اولین کنفرانس بین المللی تصفیه فاضلاب و بازیافت آب، فناوری ها و یافته های نو (سال: 1388)

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## خلاصه مقاله:

The adsorption of lead and copper ions on waste tire rubber ash (WTRA), a low-cost material, has been studied. In the present work, the abilities of WTRA to remove lead (Pb<sup>2+</sup>) and copper (Cu<sup>2+</sup>) ions from aqueous solutions were compared. The waste tire rubber is solid waste and it was used for the removal of Pb<sup>2+</sup> and Cu<sup>2+</sup> ions from aqueous solution and wastewater. Batch adsorption studies were carried out to examine the influence of various parameters such as initial pH, adsorbent dose, initial metal ion concentration, and time on uptake. The equilibrium was reached after about 120 min of contact. As much as 70-75% removal of Cu<sup>2+</sup> and Pb<sup>2+</sup> ions for WTRA are possible in about 90 min, respectively, under the batch test conditions. Uptake of Cu<sup>2+</sup> and Pb<sup>2+</sup> ions on WTRA showed a pH-dependent profile. A dose of 2 g L<sup>-1</sup> was sufficient for the optimum removal of both the metal ions. The experimental data were analyzed by the Langmuir, Freundlich and tempkin models and the isotherm data fitted well to the Langmuir isotherm model. The extent of adsorption for both metals increased along with an increase of the WTRA dosage. The adsorption kinetics was investigated and the best fit was achieved by a first-order equation. WTRA, which is cheap and highly selective, therefore seems to be a promising substrate to entrap heavy metals in aqueous solutions.

## کلمات کلیدی:

Copper, Lead, Removal, Waste Tire Rubber Ash, Wastewater

## لینک ثابت مقاله در پایگاه سیویلیکا:

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