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## EFFECTIVE MERCURY REMOVAL USING A NEW DEVELOPED POLYMER CONTAINING 2-(2' THIAZOLYLAZO) P-CRESOL

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### Abstract

A new material containing 2-(2' thiazolylazo) p-cresol (TAC) grafted poly acrylamide (PAA) was prepared and its adsorption ability was studied for the removal of inorganic mercury from aqueous media. Adsorption of Mercury (II) ions from aqueous solution was investigated in detail as a function of mercury concentration, pH, ionic strength, and temperature. The adsorption data were analyzed by using the Langmuir, Freundlich and Dubinin-Radushkevich (DR) models. The adsorption of Mercury (II) increased with increasing pH and reached to a plateau value in the pH range of 1–6. The adsorption of Mercury (II) ions was not affected by increasing salt concentration. The adsorption mechanism followed an exothermic and spontaneous process with increased disorderliness at adsorbate/adsorbent interface. The kinetic studies showed that adsorption process follows a pseudo-second-order kinetics. The reusability experiments verified that the PAA-TAC can be used for five times and the adsorbed ions could be recovered completely after each of the reiterative use.

*Key words:* adsorption, mercury, poly acrylamide, 2-(2' thiazolylazo) p-cresol

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