

RINGKASAN

Penelitian ini dilakukan untuk mensintesis material adsorben *Ionic Imprinted Polymer – Amine Modified Silica* (IIP-AMS) yang akan diaplikasikan sebagai adsorben yang selektif terhadap logam Pb. Perlu dilakukan pengembangan agar lebih selektif menyerap logam Pb yang berbahaya jika keberadaannya melewati ambang batas normal diperairan. Adapun metode yang digunakan adalah metode sol-gel. Untuk menganalisis karakterisasi material adsorben digunakan Instrumen *Fourier Transform Infra Red* (FTIR), *Scanning Electron Microscope-Energy Dispersive X-Ray* (SEM-EDX), dan *Atomic Absorption Spectrophotometry* (AAS). Hasil akhir dari penelitian ini adalah didapatkan material adsorben yang dinamakan IIP-AMS yang selektif terhadap logam Pb, didukung oleh hasil karakterisasi dari FTIR, terdapat gugus Si-O, dan N-H. Kemudian morfologi yang ditampakkan dari hasil karakterisasi SEM yaitu terlihat pori dan kandungan logam Pb yang menghilang setelah *leaching* dari hasil karakterisasi EDX. Adsorpsi tertinggi material IIP-AMS terdeteksi pada pH 6 dan konsentrasi 200 ppm, dengan nilai efisiensi dan kapasitas adsorpsi pH masing-masing sebesar 87,3% dan 0,873 mg/g. Konsentrasi optimum 200 ppm dengan nilai efisiensi dan kapasitas adsorpsi konsentrasi adsorbat masing-masing sebesar 93,84% dan 18,768 mg/g.

SUMMARY

This research was carried out to synthesize Ionic Imprinted Polymer - Amine Modified Silica (IIP-AMS) adsorbent material which will be applied as an adsorbent that has a template that is selective for Pb metal. Development needs to be done to be more selective in the absorption of the dangerous metal Pb because its presence exceeds the normal threshold for being in water. The method used is the sol-gel method. To analyze the characterization of the adsorbent material used the Fourier Transform Infra Red (FTIR) Instrument, Scanning Electron Microscope-Energy Dispersive X-Ray (SEM-EDX), and Atomic Absorption Spectrophotometry (AAS). The end result of this research is to obtain an adsorbent material called IIP-AMS which is selective for Pb metal, supported by the characterization results from FTIR, there are Si-O groups, and N-H. Then the morphology shown from the results of the SEM characterization is visible pores and the metal content of Pb which disappears after leaching from the results of the EDX characterization. The highest adsorption of IIP-AMS material was detected at pH 6 and a concentration of 200 ppm, with pH adsorption capacity and efficiency values of 87.3% and 0.873 mg/g, respectively. The optimum concentration of 200 ppm with adsorption capacity and efficiency values of adsorbate concentrations of 93.84% and 18.768 mg/g, respectively.