ADSORPSI MULTI LOGAM Ag(I), Pb(II), Cr(III), Cu(II) DAN Ni(II) PADA HIBRIDA ETILENDIAMINO-SILIKA DARI ABU SEKAM PADI

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ABSTRACT

A study on the adsorption characteristic of multi metals (Ag(I), Pb(II), Cr(III), Cu(II) and Ni(II) on silica gel (SG) and ethylenediamine-silica hybrid (ESH) which is produced from the prior research (Purwaningsih, 2007) has been completed. The adsorption of multi metals Ag(I), Cu(II) and Cr(III) was conducted in a *batch* system for one hour at variation of metal ion concentration. The adsorbed metal ion was calculated from the differences of metal ion concentration before and after based on the analysis with AAS method. From adsorption data, thermodynamic parameters including capacity, energy and equilibrium constant of adsorption were determined with a model of Langmuir isotherm adsorption

The research showed that if compared to SG, the adsorption capacity of ESH for Ag(I), Cr(III) and Ni(II) was increased, while those for Cu(II) and Pb(II) was decreased. The energy of adsorption for the metal ions were relatively low for Ag(I), Pb(II), Cr(III), Cu(II) and Ni(II) which are 22,36; 22,70; 13,36; 23,45; and 13,90 kJ/mol, indicate that the interaction between ESH and the metal ions involved fisisorption for Cr(III) and Ni(II) and chemisorption for Ag (I), Pb(II) and Cu(II).

Key words: adsorption, multi metals, ethylenediamine-silica hybrid (ESH)