

UPTAKE CADMIUM (Cd^{2+}) BY ZnAlCO_3 HYDROTALCITE

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ABSTRACT

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Hydrotalcite is also known as layered double hydroxides (LDH) has an ability as adsorbent to adsorb metals such as cadmium. Its potential is depends on their interlayer ion that can hold and remove the cadmium metals. In this study, the ZnAl-CO_3 -HT was chosen to remove cadmium and it was prepared by co-precipitation method. Characterization of LDH was performed using FTIR. The uptake of cadmium was monitored by ICP. The adsorption studies were carried out by varying the parameters which include contact time, initial Cd concentration, initial pH, and adsorbent doze. The adsorption data fit both Langmuir and Freundlich isotherm. The Langmuir isotherm was better fitted to the data experiment. The adsorption capacity was found to be 6.618 mg/g.

ABSTRAK

PENYATUAN CADMIUM (Cd^{2+}) DARIPADA LARUTAN AKUAS ZnAlCO_3

HIDROTALSIT

Hydrotalsit juga dikenali sebagai dwi-hydroxida berlapis yang mampu bertindak sebagai penyerap logam-logam. Kemampuannya adalah bergantung kepada ion didalam lapisan tersebut dimana ia boleh memegang dan memindahkan logam seperti cadmium. Di dalam kajian ini ZnAl-CO_3 hydrotalsit telah dipilih dan ianya dihasilkan dengan menggunakan kaedah mendakan. Hydrotalsit telah diselidiki cirri-cirinya oleh FTIR. Penentuan kandungan Cd^{2+} diperolehi, melalui analisis ICP. Penyerapan Cd^{2+} pada hydrotalsit telah dilakukan melalui parameter masa sentuh, dos penyerap, pH dan kepekatan larutan Cd^{2+} . Data daripada hasil kajian didapati model Langmuir sesuai digunakan untuk mencirikan keupayaan penyerapan Cd^{2+} . Keupayaan penyerapan Cd^{2+} is 6.618 mg/g.

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