

## Intercalation of Zn/Al Layered Double Hydroxides with Keggin Ion as Adsorbent of Cadmium(II)

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<b>Abstract</b>	Layered double hydroxides containing Zn <sup>2+</sup> and Al <sup>3+</sup> ions with formula [Zn <sub>1-x</sub> Al <sub>x</sub> (OH) <sub>2</sub> ] <sub>(x+)</sub> [(NO <sub>3</sub> ) <sub>(x/2)</sub> xmH <sub>2</sub> O] has been prepared using coprecipitation method at pH 10 to form Zn/Al layered double hydroxides (LDH). Zn/Al LDH then intercalated with Keggin ion of [alpha-PW <sub>12</sub> O <sub>40</sub> ] <sub>(3-)</sub> to form intercalated Zn/Al LDH. Materials were characterized using X-Ray and IR analyses. Zn/Al LDH and intercalated Zn/Al was applied as adsorbent of Cd(II) using batch system. Analysis of X-Ray and IR on Zn/Al LDH and intercalated Zn/Al with [alpha-PW <sub>12</sub> O <sub>40</sub> ] <sub>(3-)</sub> showed that synthesis of Zn/Al was successfully conducted which was indicated from diffraction at 11 deg and vibration at around 400-500 cm <sup>-1</sup> for Zn-O and Al-O vibrations. Analysis of pH PZC on LDH showed that materials have pH PZC at 5. Adsorption of Cd(II) on Zn/Al LDH and intercalated Zn/Al LDH with [alpha-PW <sub>12</sub> O <sub>40</sub> ] <sub>(3-)</sub> at showed that intercalated Zn/Al LDH with Keggin ion of [alpha-PW <sub>12</sub> O <sub>40</sub> ] <sub>(3-)</sub> has higher adsorption capacity than Zn/Al LDH without intercalation.
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