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## Adsorption of heavy metal ions on amorphous iron hydroxide as a function of concentration, PH and temperature in monometal system

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The adsorption behavior of Ni<sup>2+</sup>, Zn<sup>2+</sup> and Cd<sup>2+</sup> has been investigated in Monometal on Iron hydroxide from aqueous solution as a function of concentration (5, 10, 20, 30, 40, 50, 60 and 70ppm), pH 5 and 7 in the temperature range 303-323K. The adsorption of metal ions was found to increase with the increase in concentration and pH, and decrease with the increase in temperature. The adsorption data were explained with the help of linear form of Langmuir and Kurbatov equations. On the average 1-2 H<sup>+</sup> ions were released per metal ion adsorbed. The n values in Monometal sorption system indicated that the sorption mechanism was ion exchange in nature. Langmuir equation was found to be applicable to the data. The values of both the sorption maxima (X<sub>m</sub>) and binding energy constant (K<sub>b</sub>) for Fe(OH)<sub>3</sub> were found to decrease with the increase in temperature, suggesting that the sorption of divalent metal ions was favored at low temperatures. The Langmuir constants were used to calculate the apparent thermodynamic parameters. The negative values of ΔH<sub>o</sub> for the metal ions uptake showed the sorption to be exothermic in nature. The negative values of ΔS<sub>o</sub> and ΔG<sub>o</sub> for Iron hydroxide beside the spontaneous nature of the sorption process also showed the mechanism of sorption was the ion exchange in nature.