

P R E F A C E

The work embodied in the thesis deals with an investigation on the sorption and desorption behaviour of two Co(III) complex cations viz., tris 1,2 propane diamine Co(III) chloride, $\left[\text{Co}(\text{pn})_3\text{Cl}_3 \right]$, and tris 1,3 propane diamine Co(III) chloride or tris-trimethylene diamine Co(III) chloride, $\left[\text{Co}(\text{tn})_3\text{Cl}_3 \right]$, by ion-exchangers. It is well known that $\text{Co}(\text{pn})_3\text{Cl}_3$ is a five membered ring complex whereas $\text{Co}(\text{tn})_3\text{Cl}_3$ is a six membered one and the sizes of the two compounds are also somewhat different. In the present work two natural exchangers, viz., Bentonite and Vermiculite and three synthetic exchangers, viz., Laponite (a hectorite), Amberlite IRC-50 and Linde Molecular Sieve 13X have been selected as adsorbents. In order to understand the physico-chemical aspects of exchange equilibrium considerable attention has been devoted to studies on the desorption of $\text{Co}(\text{pn})_3^{3+}$ and $\text{Co}(\text{tn})_3^{3+}$ ions from the respective exchangers. Monovalent and divalent inorganic cations as well as alkyl quaternary ammonium ions of varying sizes have been used as desorbing ions. A systematic attempt has been made to interpret the data of both sorption and desorption in the light of prevalent approaches and models and also to express the data in qualitative and quantitative terms.

The present thesis embodies the results of research carried out by the candidate at the Department of Chemistry, University of North Bengal.

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