



Synthesis, Characterization and thermal behavior of An amorphous phase of stannic molybdosilicate ion exchanger

Surendra Dutt Sharma^{1*} and Krishna Gopal Varshney²

1. Department of Chemistry, IFTM University, Moradabad, U.P, **INDIA**

2. L-35, Sector-25, JalvayuVihar, NOIDA 201301, U.P, **INDIA**

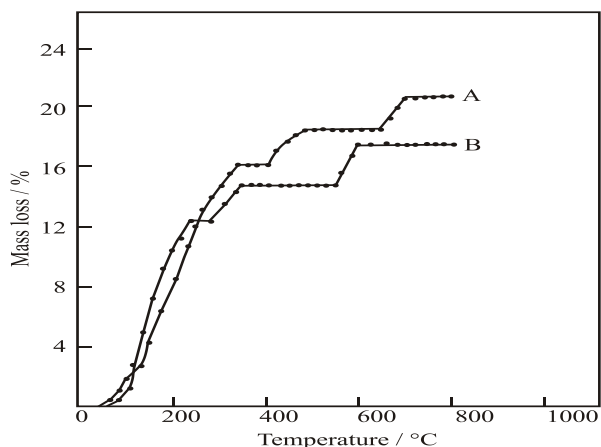
Email: dsdsharma144@rediffmail.com

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ABSTRACT

A new amorphous, reproducible and monofunctional stannic molybdosilicate ion exchanger has been synthesized, which possesses a promising ion exchange behaviour. The gain/ loss of ion exchange capacity has been studied in the temperature range 40°C to 800°C and compared with stannic molybdates to establish the role of silicate in the structure with temperature rise vis-a-vis its ion exchange capacity. Characterization of the material has been done by the chemical and instrumental methods of analysis like X-ray, TGA, IR and pH titrations. Based on these studies, the empirical formula of the material has been suggested. Analytical applications of the product have also been explored by achieving some quantitative binary separations involving Zn^{2+} , Cu^{2+} , Pb^{2+} and Mg^{2+} on its column, based on the distribution studies.

Graphical Abstract:



TG curves for stannic molybdosilicate
A-x-changer in H⁺ form, B- Exchanger in K⁺ form

Keywords: Characterization, TG; IR; X-ray, thermal stability, stannic molybdosilicate, Distribution Coefficients.