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**Kinetics and Exchange Mechanism of Zn<sup>2+</sup> and Eu<sup>3+</sup> Ions on Tin and Zirconium Silicates as a Cation Exchange Materials**

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Tin and zirconium silicates have been prepared with Sn/Si and Zr/Si molar ratios of 1 and 0.75, respectively. Kinetics and exchange studies of Zn<sup>2+</sup> and Eu<sup>3+</sup> ions on the prepared stannous and zirconium silicates have been carried out as a function of reaction temperature, particle diameters, solution concentration of the exchanging cations from water and alcohol-water mixture. The capacity of the exchangers for the studied cations from alcohol-water mixture was found higher than in pure aqueous solutions. The rate of exchange was dependent on particle diameters and independent on concentration of metal ions. The kinetic and thermodynamic parameters, viz. effective diffusion coefficients, activation energies and entropies of activation have been evaluated. Negative values of entropy, enthalpy and free energy of activation for Zn<sup>2+</sup>/M<sup>+</sup> and Eu<sup>3+</sup>/H<sup>+</sup> on both exchangers have been recorded at different conditions.