

9.1: Substitution Reactions

Lecture objectives for this unit are to:

- Compare and contrast the properties of labile, inert, stable, and unstable as used to describe coordination compounds
 - Compare and contrast the three mechanistic pathways (dissociative, associative, and interchange) for ligand substitution reactions
 - Describe the conditions that favor associative or dissociative mechanisms
 - Use reaction order and kinetic data to differentiate between possible mechanistic pathways
 - Describe the chelate effect and explain its entropic origin
 - Use the Irving-Williams series to explain the stability of coordination complexes based on LFSE
 - Predict or explain the lability of coordination complexes based on charge, size, LFSE, bond strength, and ligand nucleophilicity
 - Use the trans effect to predict or explain the product of a square planar substitution reaction
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