

Complexation Modulated Redox Behavior of Transition Metal Systems (Review)¹

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Abstract—Ligand effect is a favorable factor in modulation of redox potential of transition metal ion oxidation-reduction systems. Coordination promoted redox action of transition metals can be an efficient approach to design of new redox systems with specific applications. The current review is devoted to the complexation effect of selected ligands on the redox potential of iron, cobalt and copper redox couples and application of such systems in analytical estimations. Indirect estimation of non redox systems by a non redox reaction over a platinum electrode has been referred to as a pseudo indicator action. Application of coordination modulated redox potentials in the natural attenuation of toxic environmental contaminants is also presented.

Keywords: redox potential, ligand effect, iron transport; 1, 10-phenanthroline, neocuproine, desferrioxamine, nitroaromatic reduction

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