

Homogeneous electrocatalyst of  $\text{Ni(II)(CN)}_5^{4-}$  generation in highly alkaline medium towards  
MER of dichloromethane

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Mediated electrochemical oxidation (MEO) is emerging field towards environmental pollutants removal process using anodic part of a full electrochemical cell. At the same time, Mediated electrochemical reduction (MER) is in initial level, which must be enrooted to utilize the full electrochemical cell. It is evident from the literature that metal complexes are more suitable to use as a mediator in the MER process due to stabilize the active low valent state of metal ion. The present investigation focuses on reduction of  $\text{Ni(II)(CN)}_5^{3-}$  especially at the Ag electrode in different temperatures. At a first step, current density, Pt electrode as anode in 5 M  $\text{H}_2\text{SO}_4$  in anodic, and 0.01 M  $\text{CoSO}_4$  mediator kept constant. Electrolytic reduction of  $\text{Ni(II)(CN)}_5^{3-}$  investigated using its different electrodes like Ag, Ti, carbon, and Cu in 10 M KOH solution. The reduction of  $\text{Ni(II)(CN)}_5^{3-}$  confirmed via ORP electrode by reduction potential variation. The reduction efficiencies changes calculated using titration with  $\text{FeSO}_4$  and  $\text{KMnO}_4$ . Additionally, cyclic voltammetry analysis at said electrodes correlated with the reduction efficiency of  $\text{Ni(II)(CN)}_5^{3-}$ .