

Single divided electrolytic cell operation parameters for simultaneous generation of two electrocatalysts ligand free Co(III) and complex Co(I)(CN)<sub>5</sub><sup>4-</sup>

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A divided electrolytic cell by galvanostatic mode is the only one economically applied to industrial applications. Instead of utilizing only half electrochemical cell, here, the investigation started to utilize the full electrochemical cell in the form of MEO and MER process. In MER process, utilization of metal complexes like Co(II)(CN)<sub>5</sub><sup>3-</sup> are used to stabilize the active low valent state like Co(I)(CN)<sub>5</sub><sup>4-</sup>. Herein, first focus to generate active mediators using different electrodes (Ag, Zn, Cu, Ti, and Pt) and current densities (0.02, 0.05, 0.071 A cm<sup>2</sup>) in different kinds of electrolytes (H<sub>2</sub>SO<sub>4</sub>, KOH). The oxidation/reduction process confirmed using measure oxidation/reduction potential changes via ORP electrode. The oxidation/reduction efficiencies calculated using titration with FeSO<sub>4</sub> and KMnO<sub>4</sub>, respectively, and evidences the sustainable operation of the full electrochemical cell.