

In-situ monitoring electrogenerated electron mediator by potentiometric flow sensor cell: A paired electrolysis and electroscrubbing analysis

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Off-line potentiometric titrations was practiced using an oxidation/reduction potential (ORP) electrode to monitor the electrochemically generated active electron mediators, either oxidants or reductants, in a mediator generation plant. Here in, we have initiated to monitor the electrochemically prepared mediator $[\text{Co(I)(CN)}_5]^{4-}$ by in-situ flow sensor cell coupled with paired electrolysis cell. First, cyclic voltammetry peak current for a standard redox couple Fe(II)/Fe(III) with different concentration ratios was used in the flow sensor cell to check the developed method. Then the Chemically prepared $[\text{Co(I)(CN)}_5]^{4-}$ in presence of 10 M KOH at different concentrations were analyzed by UV-Visible and potentiometric titration method and compared. Finally, the chemically prepared different concentration of Co(I) do monitored using selected electrode under the inert atmosphere by flow sensor cell. The resulted calibration plot used to derive the concentration of $[\text{Co(I)(CN)}_5]^{4-}$.