

Online potentiometric macro flow sensor:
An innovative tool to monitor electrogenerated electron mediator in high concentrated
electrolyte during electrolysis and
air pollutants removal

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In general, an ex-situ potentiometric titrations were performed 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 $[\text{Ni(I)(CN)}_4]^{3-}$ 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 $[\text{Ni(I)(CN)}_4]^{3-}$ 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 Ni(I) do monitored using selected electrode under the inert atmosphere by flow sensor cell. The resulted calibration plot used to derive the concentration of $[\text{Ni(I)(CN)}_4]^{3-}$.

Key words: Macro sensor, In-situ flow cell, high concentrated supporting electrolyte, mediator monitoring.