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Iron (II) tetrakis(diaquaplatinum) octacarboxyphthalocyanine supported on multi-walled carbon nanotubes as effective electrocatalyst for oxygen reduction reaction in alkaline medium

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ABSTRACT

Oxygen reduction reaction (ORR) in alkaline medium at iron (II) tetrakis (diaquaplatinum) octacarboxyphthalocyanine (PtFeOCPc) catalyst supported on multi-walled carbon nanotubes (MWCNTs) has been described. The ORR followed the direct 4-electron transfer process, with a very low onset potential (approximately zero volts vs. Ag|AgCl, saturated KCl) and at a kinetic rate constant, 2.78×10^{-2} cm s^{-1}. The results clearly showed that the ORR activity at the MWCNT-PtFeOCPc platform is comparable or even better than recent reports with other electrocatalysts, thus a promising catalytic platform for cathodic process in fuel cell device.