

5th Global Summit and Expo on Pollution Control

October 25-27, 2018 | Prague, Czech Republic

Recovery of low concentrated platinum on nickel hexacyanoferrate nanoparticle films

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Nickel hexacyanoferrate (NiHCF) nanoparticle film modified electrode has been successfully synthesized for electrochemical recovery of low concentrated platinum (Pt). Such modified film shown high surface coverage, long-term stability and wide-pH adaptability. And it firstly used to recover Pt(II) from dilute Pt solution. Recovery efficiency of Pt(II) on NiHCF film was significantly influenced by Pt(II) diffusion, which can be enhanced through increasing agitation speed. In well stirring solution, the recovery of Pt(II) from dilute solution was obviously improved after the overpotential increased from 0.4 V to 0.6 V (vs. SCE). The presence of Co^{2+} is beneficial for the recovery of Pt(II), and which can lower the overpotential of Pt(II) deposition. Meanwhile, NiHCF shown higher selectivity for Pt(II) deposition than Ni^{2+} . The recovery of Pt(II) showed a more fast kinetic process than conventional particle adsorption, and it can be fitted well by pseudo-second-order kinetics equation.

Biography

Dr. CHEN has completed his PhD at the age of 27 years from Tsukuba University and postdoctoral studies from School of Chemical Engineering, The University of Queensland, and Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology, Japan. He is an Associate Professor, College of Resources and Environment, University of Chinese Academy of Sciences, since March 2014. As an early-career academic, He has over 40 publications, including 36 fully refereed journal papers, three book chapters, and many international conference papers, has been serving as member of International Society of Electrochemistry (ISE), European Membrane Society (EMS) and as well as regular reviewer for 30+ famous journals.

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