Pt-MWCNTs as electrocatalyst for Oxidation of *p*-methoxytoluene (*p*-MT) to *p*-methoxybenzaldehyde (*p*-MeOBA)

Yanmei Liao, Yinghong Zhu*, Lianbang Wang

College of chemical Engineering, Zhejiang University of Technology, Hangzhou, 310023 Zhejiang China

*E-mail: yhzhuchem@zjut.edu.cn

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Electrochemical synthesis is promising for the new processes focused on the improvement of electrochemical oxidation occurring on the electrodes. Herein, we report a facile preparation method of Pt nanoparticles being highly dispersed on multi-walled carbon nanotubes (MWCNTs). The morphology of the prepared electrode material Pt-MWCNTs was measured by X-ray diffraction (XRD), Transmission electron microscopy (TEM) and X-ray Photoelectron Spectroscopy (XPS). These results demonstrated that the Pt nanoparticle of Pt-MWCNTs has face-centered cubic (fcc) structure typical and was highly dispersed on MWCNTs (marked as Pt-MWCNTs). The activity and stability of the Pt-MWCNTs electrode was characterized by Cyclic voltammetry (CV) and the controlled-potential electrolysis. The results showed that the Pt-MWCNTs exhibited excellent activity and stability on the electrochemical oxidation for *p*-methoxytoluene (*p*-MT) to *p*-methoxybenzaldehyde (*p*-MeOBA) in aqueous solution at 40 °C.

Keywords: Electrochemical oxidation; Pt-MWCNTs; *p*-MT; activity; stability.

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