

Eletrocatalise

CAT-13 DETECTING DIFFERENT CO₂ CONTRIBUTIONS FROM DIRECT AND INDIRECT PATHWAYS DURING THE ELECTRO-OXIDATION OF METHANOL ON PLATINUM

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Palavras-chave: *electrocatalysis, methanol, oscillations, DEMS*

The electro-oxidation of methanol to CO₂ is believed to proceed through a so-called dual pathway mechanism. The direct pathway proceeds via reactive intermediates such as formaldehyde or formic acid, whereas the indirect pathway occurs in parallel, and proceeds via the formation of adsorbed carbon monoxide (CO_{ad}). Despite the extensive literature on the electro-oxidation of methanol, no study to date distinguished the production of CO₂ from direct and indirect pathways. Working under, far-from-equilibrium, oscillatory conditions, we were able to decouple, for the first time, the direct and indirect pathways that lead to CO₂ during the oscillatory electro-oxidation of methanol on platinum. The CO₂ production was followed by differential electrochemical mass spectrometry and the individual contributions of parallel pathways were identified by a combination of experiments and simulations. This report opens some perspectives, particularly as a methodology to be used to identify the role played by surface modifiers on the relative weight of both pathways, an important issue to the effective development of catalysts for low temperature fuel cells..

CAT-14 O EFEITO DO PVP NA SÍNTSEDE PtRuSn/C PARA ELETRO-OXIDAÇÃO DE CO

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Palavras-chave: *eletro-oxidação, CO, PVP, PtRuSn/C*

In this work we investigated the effect of the amount of PVP in the catalytic activity for CO electrooxidation to carbon-supported PtRuSn 50:40:10 catalyst, prepared by alcohol reduction method.