

Accepted Manuscript



Recent development of methanol electrooxidation catalysts for direct methanol fuel cell

Liyuan Gong , Zhiyuan Yang , Kui Li , Junjie Ge , Changpeng Liu , Wei Xing

PII: S2095-4956(17)31038-0
DOI: [10.1016/j.jechem.2018.01.029](https://doi.org/10.1016/j.jechem.2018.01.029)
Reference: JECHEM 545

To appear in: *Journal of Energy Chemistry*

Received date: 16 November 2017
Revised date: 19 January 2018
Accepted date: 24 January 2018

Please cite this article as: Liyuan Gong , Zhiyuan Yang , Kui Li , Junjie Ge , Changpeng Liu , Wei Xing , Recent development of methanol electrooxidation catalysts for direct methanol fuel cell , *Journal of Energy Chemistry* (2018), doi: [10.1016/j.jechem.2018.01.029](https://doi.org/10.1016/j.jechem.2018.01.029)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Review

Recent development of methanol electrooxidation catalysts for direct methanol fuel cell

Liyuan Gong^{a,b,c,#}, Zhiyuan Yang^{a,b,c,#}, Kui Li^{a,b,c}, Junjie Ge^{a,c,*}, Changpeng Liu^{a,c,*}, Wei Xing^{a,c,d,*}

^a *State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, Jilin, China*

^b *University of Chinese Academy of Sciences, Beijing 100039, China*

^c *Laboratory of Advanced Power Sources, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, Jilin, China*

^d *Jilin Province Key Laboratory of Low Carbon Chemical Power Sources, Changchun 130022, Jilin, China*

[#] These authors contributed equally to this work.

^{*} Corresponding authors.

E-mail addresses: xingwei@ciac.ac.cn (W. Xing), liuchp@ciac.ac.cn (C.P. Liu), gejj@ciac.ac.cn (J.J. Ge)

Fax: +86-431-85685653; *Tel:* +86-431-85262223 (W. Xing)

ABSTRACT

Direct methanol fuel cells (DMFCs) are very promising power source for stationary and portable miniature electric appliances due to its high efficiency and low emissions of pollutants. As the key material, catalysts for both cathode and anode face several problems which hinder the commercialization of DMFCs. In this review, we mainly focus on anode catalysts of DMFCs. The process and mechanism of methanol electrooxidation on Pt and Pt-based catalysts in acidic medium have been introduced. The influences of size effect and morphology on electrocatalytic activity are discussed though whether there is a size effect in MOR catalyst is under debate. Besides, the non Pt catalysts are also listed to emphasize though Pt is still deemed as the indispensable element in anode catalyst of DMFCs in acidic medium. Different catalyst systems are compared to illustrate the level of research at present. Some debates need to be verified with experimental evidences.

Keywords

DMFCs; Methanol electrooxidation; Anode catalysts

Download English Version:

<https://daneshyari.com/en/article/10224932>

Download Persian Version:

<https://daneshyari.com/article/10224932>

[Daneshyari.com](https://daneshyari.com)