Mini Review

Research Advance of Multi-anionic Compound Nanomaterials in Electrocatalytic Water Decomposition

Xin Liu^{1,2}, Lin Zhu², Keying Cui^{1,2}, Runyu Gao², Yan Liu², Jialin Xu², Haoran Ma², and Weimin Du^{2,*}

¹ College of Chemistry, Zhengzhou University, Zhengzhou, Henan, 450001, China

² Henan Province Engineering Laboratory of Chemical Energy-saving Material Development and Application, College of Chemistry and Chemical Engineering, Anyang Normal University, Anyang, Henan, 455002, China,

*E-mail: dwmchem@163.com

doi: 10.20964/2021.07.14

Received: 1 March 2021 / Accepted: 7 April 2021 / Published: 31 May 2021

Due to the large surface area, lots of active sites and the better synergy, multi-anionic compound nanomaterials usually have the improved electrocatalytic activity and other special physicochemical properties. However, compared to the synthesis and catalytic application of multi-cation compound nanomaterials, the research on multi-anionic compound nanomaterials is lagged a lot, especially in the field of hydrogen production by electrolysis of water. Therefore, the recent research advance of multi-anionic compound nanomaterials are detailed reviewed in this paper, including: preparation methods, structural characteristics, electrocatalytic performance and internal mechanism. Some suggestions are made for the future development of multi-anion compound nanomaterials.

Keywords: Research advance; Multi-anionic; Nanomaterials; Electrocatalysis; Water decomposition.

[FULL TEXT](#)

© 2021 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).