

Electrochemical Properties of Aluminum-Graphene Composite Anodes

Victor Volkov, Svetlana Eliseeva, Alexandr Pimenov, Alexey Shvarev*

VVV Technologies (Thailand) Co. Ltd., Piyawong warehouse co., Ltd, 287 Moo 6 Bueng, Sriracha, Chonburi 20230, phone +66 38-119277

*E-mail: alexey.shvarevbear@gmail.com

doi: 10.20964/2016.11.70

Received: 19 August 2016 / Accepted: 21 September 2016 / Published: 10 October 2016

Properties of several aluminum-graphene composites obtained by three different methods are investigated by Raman spectroscopy, SEM and electrochemical techniques. A two-phase synthesis method under halide melt above the melting point of aluminum yielded the most uniform distribution of graphene flakes in the metal matrix. It is shown that anodic polarization of the Al-graphene composites is different from pure aluminum and dramatically depends on the method of composite synthesis. Composites with uniform distribution of graphene flakes possessing improved electrochemical properties can be considered as perspective anode materials for an aluminum-air battery.

Keywords: Aluminum, graphene, composite, electrochemistry, aluminum, battery

[FULL TEXT](#)

© 2016 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/>).