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PII: S0272-8842(18)31444-5  
DOI: <https://doi.org/10.1016/j.ceramint.2018.06.017>  
Reference: CERI18461

To appear in: *Ceramics International*

Received date: 1 May 2018  
Revised date: 30 May 2018  
Accepted date: 3 June 2018

Cite this article as: Zhongping Li, Zhaowen Huang, Ning Xie, Xuenong Gao, Yutang Fang and Zhengguo Zhang, Preparation of Al<sub>2</sub>O<sub>3</sub>-coated expanded graphite with enhanced hydrophilicity and oxidation resistance, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.06.017>

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**Preparation of Al<sub>2</sub>O<sub>3</sub>-coated expanded graphite with enhanced hydrophilicity and oxidation resistance**

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**ABSTRACT**

Expanded graphite (EG), as a new kind of functional carbon-based material, is a vital supporting material and heat transfer enhancer for preparing highly conductive form-stable composite phase change materials (PCMs). However, the hydrophobic nature of EG makes it difficult to incorporate with inorganic PCMs. In this work, we intended to solve this drawback and a modified EG named Al<sub>2</sub>O<sub>3</sub>-coated EG which was characterized by enhanced hydrophilicity was developed via a heterogeneous nucleation technique and subsequent heat treatment. Experiments found that the Al<sub>2</sub>O<sub>3</sub> layer on the

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