

## Accepted Manuscript

Carbon foams prepared from coal tar pitch for building thermal insulation material with low cost

Xiang Liu, Yanli Wang, Liang Zhan

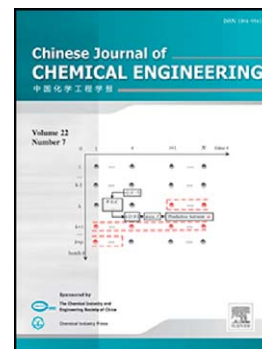
PII: S1004-9541(17)30191-X  
DOI: doi:[10.1016/j.cjche.2017.04.012](https://doi.org/10.1016/j.cjche.2017.04.012)  
Reference: CJCHE 816

To appear in:

Received date: 13 February 2017  
Revised date: 13 April 2017  
Accepted date: 19 April 2017

Please cite this article as: Xiang Liu, Yanli Wang, Liang Zhan, Carbon foams prepared from coal tar pitch for building thermal insulation material with low cost, (2017), doi:[10.1016/j.cjche.2017.04.012](https://doi.org/10.1016/j.cjche.2017.04.012)

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.



**Carbon foams prepared from coal tar pitch for building thermal insulation  
material with low cost**

Xiang Liu<sup>a</sup>, Yanli Wang<sup>a</sup>, Liang Zhan<sup>a,b\*</sup>

<sup>a</sup>State Key Laboratory of Chemical Engineering, Key Laboratory for Specially Functional Polymers and Related Technology of Ministry of Education, Shanghai Key Laboratory of Multiphase Materials Chemical Engineering, East China University of Science and Technology, Shanghai 200237, PR China

<sup>b</sup>CAS Key Laboratory of Carbon Materials, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China

**Abstract:** A new approach is provided to resolve the large-scale applications of coal tar pitch. Carbon foams with uniform pore size are prepared at the foaming pressure of normal pressure using coal tar pitch as raw materials. The physical and chemical performance of high softening point pitch (HSPP) can be regulated by vacuumizing owing to the cooperation of vacuumizing and polycondensation. Results indicate that the optimum softening point and weight ratio of quinoline insoluble are about 292 °C and 65.7%, respectively; and the optimum viscosity of HSPP during the foaming process is distributed in the range of 1000-10000 Pa.s. The resultant carbon foam exhibits excellent performance, such as uniform pore structure, high compressive strength (4.7 MPa), low thermal conductivity (0.07W/m.K), specially, it cannot be fired under the high temperature of 1200 °C. Thus, this kind of carbon foam is a potential candidate for thermal insulation material applied in energy saving building.

**Keywords:** Carbon foam; Coal tar pitch; Building thermal insulation materials

---

\* Corresponding author. Tel: +86 21 64252924; Fax: +86 21 64252914. *E-mail address:* zhanliang@ecust.edu.cn (Liang Zhan)

Download English Version:

<https://daneshyari.com/en/article/6593151>

Download Persian Version:

<https://daneshyari.com/article/6593151>

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