

## Accepted Manuscript

Contiguity as a governing parameter to predict the strength of porous materials

Kyungju Nam, Hyeji Park, Hyelim Choi, Heeman Choe

PII: S0167-577X(17)31702-0  
DOI: <https://doi.org/10.1016/j.matlet.2017.11.077>  
Reference: MLBLUE 23443

To appear in: *Materials Letters*

Received Date: 19 January 2017  
Revised Date: 2 November 2017  
Accepted Date: 18 November 2017

Please cite this article as: K. Nam, H. Park, H. Choi, H. Choe, Contiguity as a governing parameter to predict the strength of porous materials, *Materials Letters* (2017), doi: <https://doi.org/10.1016/j.matlet.2017.11.077>

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.



**Contiguity as a governing parameter to predict the strength of porous materials**

Kyungju Nam, Hyeji Park, Hyelim Choi, Heeman Choe\*

School of Materials Science and Engineering, Kookmin University, 77 Jeongneung-ro,  
Seongbuk-gu, Seoul 02707, Republic of Korea

\*Corresponding author. Tel: +82-2-910-5020; fax: +82-2-910-4320;  
e-mail: [heeman@kookmin.ac.kr](mailto:heeman@kookmin.ac.kr) (H. Choe)

**Abstract** – With increasing demand for porous materials with their popular use in functional applications, there is a strong need to develop a decent strength prediction method for porous materials. The Gibson-Ashby (G-A) model, which is the most common prediction method, has served this purpose. This model is constructed upon a weakly-structured open-cell porous material, thus providing a ‘lower bound’ of yield strength. This study considers ‘contiguity’ as a governing parameter to predict the strength of porous materials and proposes a modified G-A model by incorporating the concept of contiguity. This paper supports preliminary evidence that the new model better describes the strength of selected porous materials.

**Keywords:** *Porous materials; foams; composite materials; modeling; powder processing; yield strength*

Download English Version:

<https://daneshyari.com/en/article/8015040>

Download Persian Version:

<https://daneshyari.com/article/8015040>

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