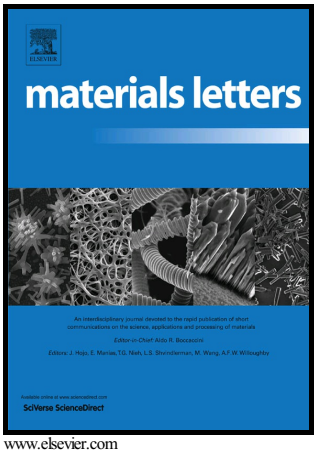

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PII: S0167-577X(16)31669-X
DOI: http://dx.doi.org/10.1016/j.matlet.2016.10.072
Reference: MLBLUE21641

To appear in: *Materials Letters*

Received date: 27 June 2016
Revised date: 28 September 2016
Accepted date: 16 October 2016

Cite this article as: Jianwei Guo, Xiangfeng Lai, Shuqin Fu, Hangbo Yue, Jiawe Wang and Paul D Topham, Microporous Organic Polymers Based or Hexaphenylbiadamantane: Synthesis, Ultra-High Stability and Gas Capture *Materials Letters,* http://dx.doi.org/10.1016/j.matlet.2016.10.072

Microporous Organic Polymers Based on Hexaphenylbiadamantane: Synthesis, Ultra-High Stability and Gas Capture

Jianwei Guo [a]*, Xiangfeng Lai [a], Shuqin Fu [a], Hangbo Yue [a], Jiawei Wang [b], Paul D Topham [b]*

[a] School of Chemical Engineering & Light Industry, Guangdong University of Technology, Guangzhou, 510006, China

[b] Aston Materials Centre, Aston University, Birmingham, B4 7ET, UK

* Corresponding authors

guojw@gdut.edu.cn (J. Guo)

p.d.topham@aston.ac.uk (P. Topham)

Abstract

Hexaphenylbiadamantane-based microporous organic polymers (MOPs) were successfully synthesized by Suzuki coupling under mild conditions. The obtained MOPs show high surface area (891 m^2 g^{-1}), ultra-high thermal (less than 40% mass loss at temperatures up to 1000 ^oC) and chemical (no apparent decomposition in organic solvents for more than 7 days) stability, gas (H_2, CO_2, CH_4) capture capabilities and vapor (benzene, hexane) adsorption. These combined abilities render the synthesized MOPs an attractive candidate as thermo-chemically stable adsorbents for practical use in gas storage and pollutant vapor adsorption.

Graphic Abstract