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Microporous conjugated polymers via homopolymerization of 2,5-diethynylthiophene

Dmitrij Bondarev^{a,*}, Radoslava Sivkova^{b,c}, Pavol Šuly^d, Martina Polášková^e, Ondřej Krejčí^e, Radka Křikavová^f, Zdeněk Trávníček^f, Arnošt Zukaš^g, Martin Kubů^g, Jan Sedláček^{b,*}

- a) Polymer Institute, Slovak Academy of Science, Dúbravská cesta 9, 845 41 Bratislava, Slovakia
 - b) Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University in Prague, Hlavova 2030, CZ-128 43 Prague, Czech Republic
 - c) Department of Chemistry and Physics of Surfaces and Biointerfaces, Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Heyrovsky sq. 2, 162 06 Prague 6, Czech Republic
 - d) Centre of Polymer Systems, Tomas Bata University in Zlin, Tr. Tomase Bati 5678, CZ-76001, Zlín, Czech Republic
 - e) Department of Polymer Engineering, Faculty of Technology, Tomas Bata University in Zlin, Vavrečkova 275, CZ-762 72 Zlín, Czech Republic
 - f) Department of Inorganic Chemistry, Faculty of Science, Palacký University, 17. listopadu 12, 771 46 Olomouc, Czech Republic
 - g) J. Heyrovský Institute of Physical Chemistry, v.v.i., Academy of Sciences of the Czech Republic, Dolejškova 3, CZ-182 23, Prague 8, Czech Republic.
- * corresponding authors email addresses: dmitrij.bondarev@savba.sk, jansedl@natur.cuni.cz Electronic Supplementary Information (ESI) available.

Abstract

Homopolymerizations of 2,5-diethynylthiophene into conjugated microporous polymers by (i) chain-growth polymerization and (ii) polycyclotrimerization are described. Both methods provide nearly quantitative yields of thiophene-rich (7.6 mmol thiophene rings/g) networks with specific surface area up to 839 m²/g. The thiophene units enhance the affinity of the networks to CO₂ and red-shift the UV/vis and fluorescence absorption and emission bands of the networks, respectively.

Keywords: thiophene, microporous, catalysis, polymerization, conjugated polymer, adsorption

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