Accepted Manuscript

Title: Fabrication of cotton fabric with superhydrophobicity and flame retardancy

Author: Ming Zhang; Chengyu Wang

PII: S0144-8617(13)00378-0

DOI: http://dx.doi.org/doi:10.1016/j.carbpol.2013.04.025

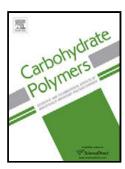
Reference: CARP 7641

To appear in:

Received date: 5-1-2013 Revised date: 25-3-2013 Accepted date: 10-4-2013

Please cite this article as: Wang, M. Z. C., Fabrication of cotton fabric with superhydrophobicity and flame retardancy, *Carbohydrate Polymers* (2013), http://dx.doi.org/10.1016/j.carbpol.2013.04.025

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.



ACCEPTED MANUSCRIPT

1 Fabrication of cotton fabric with superhydrophobicity and flame

- 2 **retardancy**
- 3 Ming Zhang; Chengyu Wang*
- 4 Key laboratory of Bio-based Material Science and Technology, Ministry of Education,
- 5 Northeast Forestry University, Harbin 150040, China
- *Corresponding author. E-mail: wangcy@nefu.edu.cn, Tel (Fax): +86-451-82190116

7

- 8 ABSTRACT
- A simple and facile method for fabricating the cotton fabric with superhydrophobicity 9 10 and flame retardancy is described in the present work. The cotton fabric with the maximal WCA of 160° has been prepared by the covalent deposition of amino-silica 11 nanospheres and the further graft with (heptadecafluoro-1, 1, 2, 2-tetradecyl) 12 trimethoxysilane. The geometric microstructure of silica spheres was measured by 13 transmission electron microscopy (TEM). The cotton textiles before and after 14 treatment were characterized by using scanning electron microscope (SEM) and X-ray 15 16 photoelectron spectroscopy (XPS). The wetting behavior of cotton samples was investigated by water contact angle measurement. Moreover, diverse performances of 17 superhydrophobic cotton textiles have been evaluated as well. The results exhibited 18 the outstanding superhydrophobicity, excellent waterproofing durability and flame 19 retardancy of the cotton fabric after treatment, offering a good opportunity to 20 accelerate the large-scale production of superhydrophobic textiles materials for 21 new industrial applications. 22

Download English Version:

https://daneshyari.com/en/article/10601512

Download Persian Version:

 $\underline{https://daneshyari.com/article/10601512}$

Daneshyari.com