

Accepted Manuscript

Heat induced superhydrophilic glass surface

Dongdong Zhang, Naikun Gao, Weishan Yan, Wenyao Luo, Ling Zhang,
Chaopeng Zhao, Wangyang Zhang, Duo Liu

PII: S0167-577X(18)30530-5
DOI: <https://doi.org/10.1016/j.matlet.2018.03.158>
Reference: MLBLUE 24119

To appear in: *Materials Letters*

Received Date: 5 February 2018
Revised Date: 15 March 2018
Accepted Date: 23 March 2018

Please cite this article as: D. Zhang, N. Gao, W. Yan, W. Luo, L. Zhang, C. Zhao, W. Zhang, D. Liu, Heat induced superhydrophilic glass surface, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.03.158>

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.



Heat induced superhydrophilic glass surface

Dongdong Zhang, Naikun Gao, Weishan Yan, Wenyao Luo, Ling Zhang, Chaopeng Zhao, Wangyang

Zhang, Duo Liu*

State Key Laboratory of Crystal Materials, Shandong University, 27 South Shanda Road, Jinan,

Shandong 250100, P. R. China

Abstract: Silica and its derivative as a major component of earth mantle have long been believed to have profound effects on the evolution of nature and life. In this article, the wetting behaviors of silica and its derivatives after heat treatment are investigated. We obtain a superhydrophilic surface on soda-lime glass by heat treatment, but not on fused quartz and single crystal silica. The annealed soda-lime glass exhibits excellent anti-fog effect and can maintain at hydrophilic state in the air for one month. The glass is also highly transparent throughout the visible light region and exhibits excellent ultraviolet resistance and mechanical stability. The wettability transition is attributed to increased surface roughness and heat-induced composition variation. This investigation may shed light on the design and fabrication of novel glass products.

Keywords: Soda-lime glass; Interface wetting; Atomic force microscopy; XPS; Electron probe microanalysis

*Author to whom correspondences should be addressed. Email: liuduo@sdu.edu.cn

Download English Version:

<https://daneshyari.com/en/article/8012973>

Download Persian Version:

<https://daneshyari.com/article/8012973>

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