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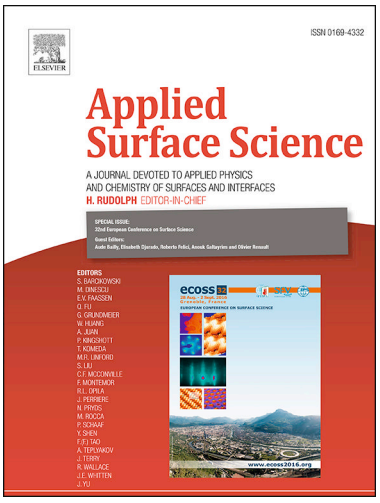

Full Length Article

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PII: S0169-4332(18)31761-6
DOI: https://doi.org/10.1016/j.apsusc.2018.06.194
Reference: APSUSC 39702

To appear in: *Applied Surface Science*

Received Date: 23 March 2018
Revised Date: 10 June 2018
Accepted Date: 21 June 2018

Please cite this article as: M. Qu, X. Ma, L. Hou, M. Yuan, J. He, M. Xue, X. Liu, J. He, Fabrication of Durable Superamphiphobic Materials on Various Substrates with Wear-Resistance and Self-Cleaning Performance from Kaolin, *Applied Surface Science* (2018), doi: https://doi.org/10.1016/j.apsusc.2018.06.194

Fabrication of Durable Superamphiphobic Materials on Various Substrates with Wear-Resistance and Self-Cleaning Performance from Kaolin

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ABSTRACT: In recent years, the fabrication of superamphiphobic materials has become a hot topic, especially the material with wear abrasion resistance. In this study, the anti-abrasion and self-cleaning superamphiphobic materials were successfully fabricated by employing kaolin particles and silanes via a simple drop coating method. The as-prepared materials show excellent superamphiphobicity to water, ordinary liquids and kinds of oils, even the hexadecane with surface tension as low as 27.5 $mN \cdot m^{-1}$. With respect to the mechanical durability, the fabricated material can still maintain its superamphiphobicity even after 180 cm abrasion using sandpaper. The excellent investigation results concerning to chemical durability, self-cleaning property, repellent to corrosion liquids, resistant to ultraviolet radiation and water dripping prove that the fabricated material is robust and multifunctional, which will increase more opportunities for practical applications. Apart from these general applications, the as-fabricated materials can be easily applied to various substrates. These multifunctional properties and the facile preparation method are expected to