PROGRAM

NET−P012

Thermally/Dynamically Stable Superhydrophobic ZnO Nanoparticles on Various Substrates

M. K Lee, G. J Kwak, K. J Yong

포항공과대학교

We demonstrated the fabrication method of superhydrophobic nanocoating through a facile spin-coating and the chemical modification. The resulting coating showed a tremendous water repellency with a static water contact angle (CA) of 158° and a hysteresis of 1°. The number of ZnO nanoparticle (NP) coating cycles affected on the surface roughness, which is key role for superhydrophobic surface, and thus the CA can be modulated by changing the ZnO NP coating cycles. The CA can be controlled by changing the carbon length of Self-Assembled Monolayers(SAM). This simple ZnO coating is substrate-independent including flexible surfaces, papers and cotton fabrics, which can effectively be used in various potential applications. We also observed the thermal and dynamic stabilities of SAM on ZnO nanoparticles. The superhydrophobicic surface maintained its superhydrophobic properties below $250^{\circ}C$ and under dynamic conditions.

Keywords: Superhydrophobic, ZnO, Nanoparticles