

Fabrication of Superhydrophobic Surface by the Combustion of Asphalt Tar

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Superhydrophobic surface is a nature-inspired surface that has static water contact angle larger than 150° and contact angle hysteresis smaller than 10° . It has been widely studied in both academic and industrial field because of its unique wettability and self-cleaning ability. In this work, we report a simple method to fabricate superhydrophobic surface by the combustion of asphalt tar, a waste product from crude oil cracking. To fabricate the superhydrophobic surface, the tar-coated slide glass was heated to 450°C . After the combustion, carbon soot from the reaction created hierarchical nano-structures, coating the glass with superhydrophobic soot layer. The surface morphology and elemental composition of the fabricated surface were characterized using scanning electron microscopy (SEM) and X ray photoelectron spectroscopy (XPS), respectively. The fabricated surface showed the static water contact angle of 167° and contact angle hysteresis of 4° .