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Supporting Information for

Versatile Superhydrophobic and Photocatalytic Films Generated from TiO_2-SiO_2@PDMS and their Applications on Fabrics

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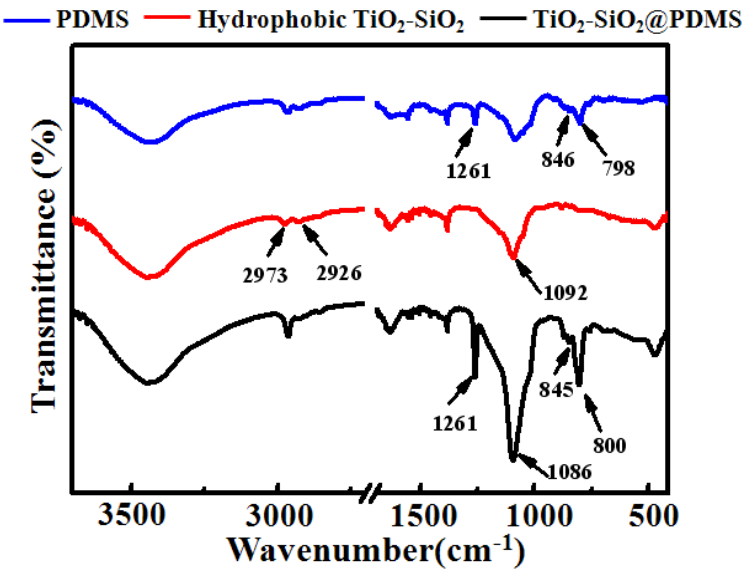

Figure S1. FT-IR spectra of polymer PDMS (blue), hydrophobic TiO_2-SiO_2 (red), and TiO_2-SiO_2 @ PDMS hybrid powder (black).

The FTIR spectra of hydrophobic TiO_2-SiO_2 hybrid gels should have been assigned to the hydrolysis of HMDS monomers to replace the Si-OH or Ti-OH groups with –Si-$(CH_3)_3$ and Ti-Si-$(CH_3)_3$ groups, which are attributed to the hydrophobicity

of hybid gels. The absorption bands observed at 2973 and 2926 cm^{-1} are due to C–H stretching. For PDMS-containing hybrid powder, the additional absorption bands at about 1261 cm^{-1} (Si-CH_3 stretching) and 845 (CH_2 rocking) conform the existence of -CH_3 groups on the surface of modified hybrid gels. It is worth noting that the peak intensity of at 1086 cm^{-1} markedly increases and becomes higher than that hybrid powder gels and pure PDMS, which results in the introduction of Si-O-Si stretching vibrations.

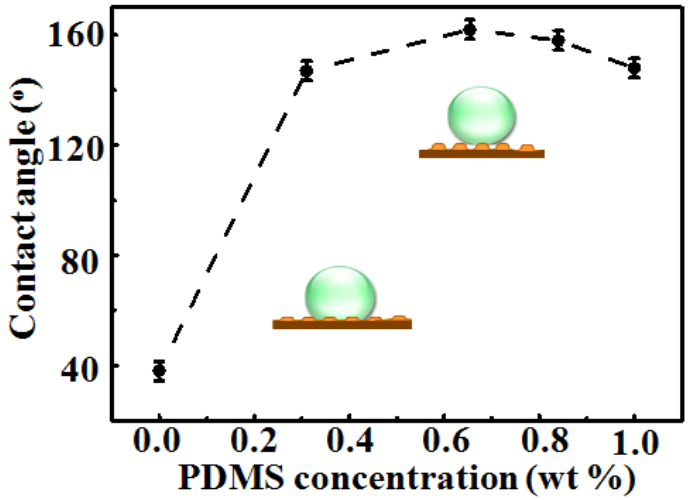

Figure S2. Effect of PDMS concentration on water contact angle (WCA) values

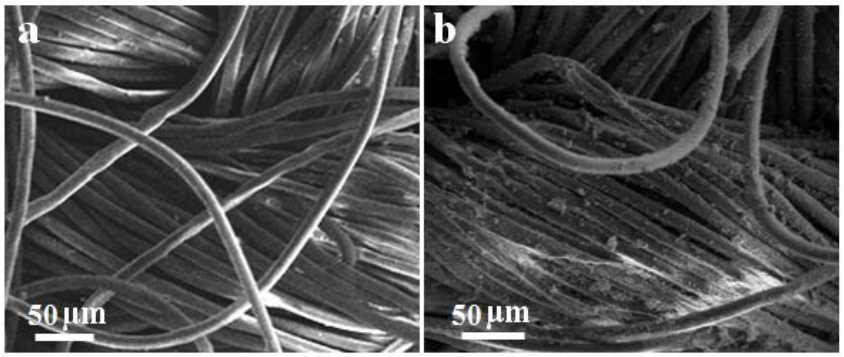

Figure S3. SEM images of the polyester/cotton fabrics. (a) The pristine fabrics, scale bar: 50 μm. (b) Treated fabrics, scale bar: 50 μm