Electronic Supplementary Information

Superhydrophobic meshes that can repel hot water and strong corrosive liquids used for efficient gravity-driven oil/water separation

Jian Li *, Ruimei Kang, Xiaohua Tang, Houde She, Yaoxia Yang, Fei Zha

Key Laboratory of Eco-Environment-Related Polymer Materials, Ministry of Education of China, Key Laboratory of Gansu Polymer Materials, College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou 730070, China

* Corresponding author. Tel.: +86 931 7971533; fax: +86 931 7971989.
E-mail address:jianli83@126.com (J. Li).

Supplementary figure and movie captions:

Figure S1. FE-SEM images of the pure hydrophobic SiO_2 coated mesh.

Figure S2. Variation of water CAs of the overlap coated meshes as a function of pH value.

Figure S3. Variation of water CAs and SAs of the pure silica coated mesh with the change of pH value.

Figure S4. Water CAs and SAs of the treated pure silica coated mesh after being immersed the mesh into 1 M HCl, 1 M NaOH and 1 M NaCl solutions for 12 h, respectively.

Figure S5. Dependence of water CA on the temperature of the water droplet placed on the pure silica coated meshes.

Figure S6. Photographs of 1M NaCl, 1M HCl, 1M NaOH solutions, hot water and kerosene droplets placed on the original (a) and (b) pure silica coated mesh.

Movie S1. The overlap coated mesh can support as high as 30 cm of hot water (92 °C).

Movie S2. The separation process of oil (kerosene)/hot water (92 °C) mixture based on the CS and silica overlap coated mesh.

Movie S3 The separation process of kerosene/1M HCl solution mixture based on the CS and silica overlap coated mesh.

Movie S4. The separation process of kerosene/1M NaCl solution mixture based on the CS and silica overlap coated mesh.

Movie S5. The separation process of kerosene/1M NaOH solution mixture based on the CS and silica overlap coated mesh.

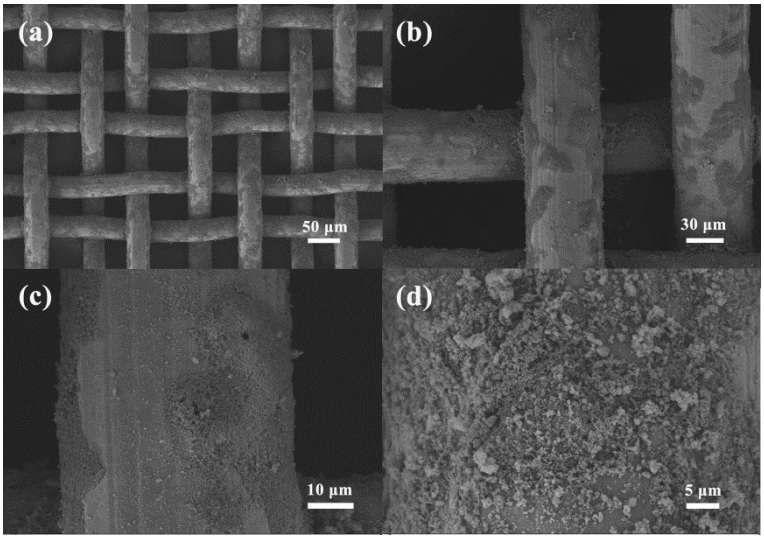

Fig. S1 FE-SEM images of the pure hydrophobic SiO_2 coated mesh.

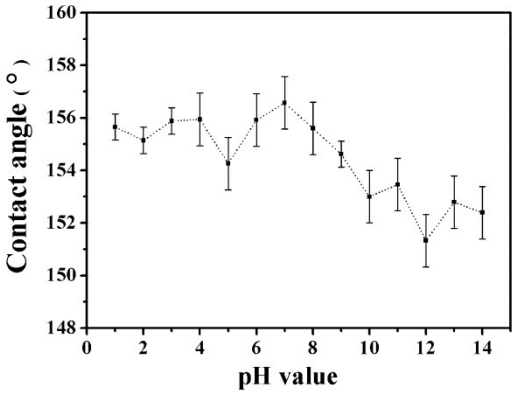

Fig. S2 Variation of water CAs of the overlap coated meshes as a function of pH value.

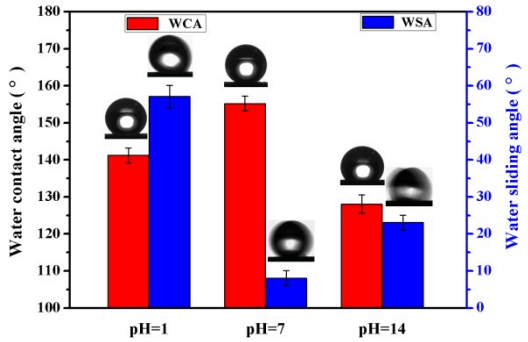

Fig. S3 Variation of water CAs and SAs of the pure silica coated mesh with the change of pH value.

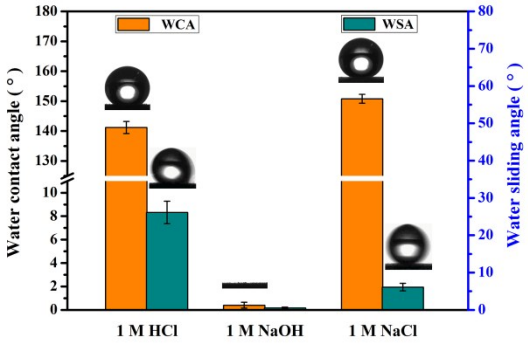

Fig. S4 Water CAs and SAs of the treated pure silica coated mesh after being immersed the mesh into 1 M HCl, 1 M NaOH and 1 M NaCl solutions for 12 h, respectively.

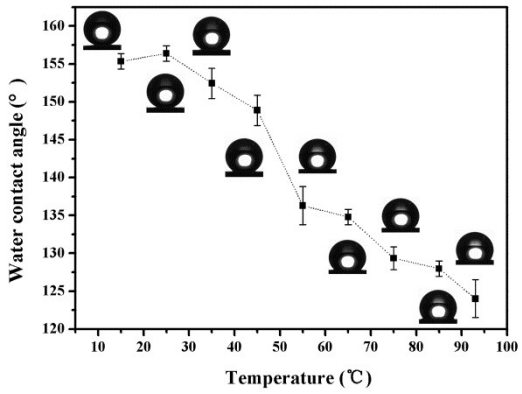

Fig. S5 Dependence of water CA on the temperature of the water droplet placed on the pure silica coated meshes.

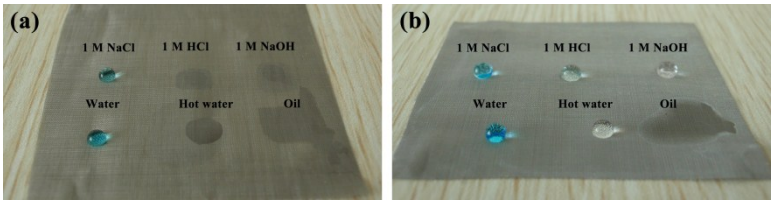

Fig. S6 Photographs of 1M NaCl, 1M HCl, 1M NaOH solutions, hot water and kerosene droplets placed on the original (a) and (b) pure silica coated mesh.