Electric Supplementary Information

Superoleophilic and Superhydrophobic Biodegradable Material with Porous Structures for Oil Absorption and Oil–water Separation

Zhongxin Xue,[a,b] *Zhongxue Sun,*[a,c] *Yingze Cao,*[a] *Yuning Chen,*[a] *Lei Tao,*[a] *Kan Li,*[b] *Lin Feng,**[a] *Qiang Fu,*[c] *and Yen Wei,*[a]

[a] Department of Chemistry, Tsinghua University, Beijing 100084, P. R. China;

[b] Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100190, P. R. China.

[c] Department of Chemistry, Northeast Normal University, Changchun, Jilin, 130024, P.R. China.

Tel: +86-010-62792698;
E-mail: fl@mail.tsinghua.edu.cn

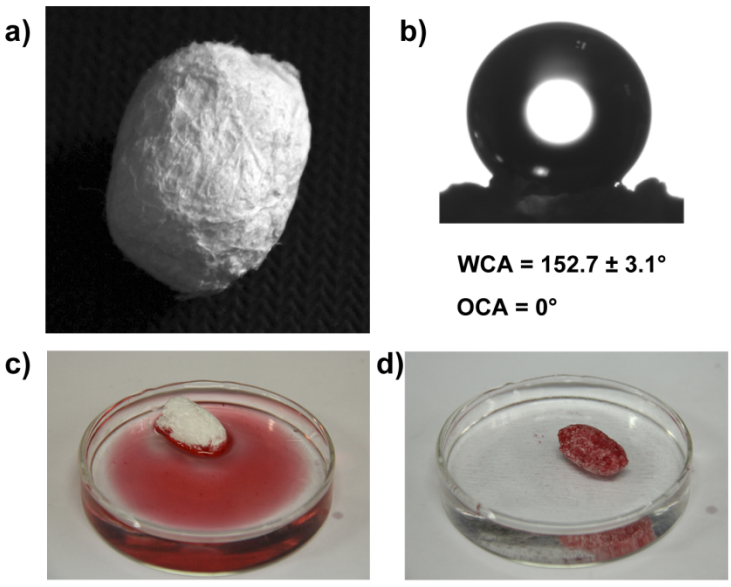

Figure S1. a) Photograph image of the spherical PLA absorption material. b) Photograph of a water droplet (2 μL) on the PLA absorption material with a contact angle of 152.7 ± 3.1°. c-d) Snapshots showing the absorption of a colored hexane film (dyed with Oil Red O) distributed on a water bath by a piece of PLA absorption material.

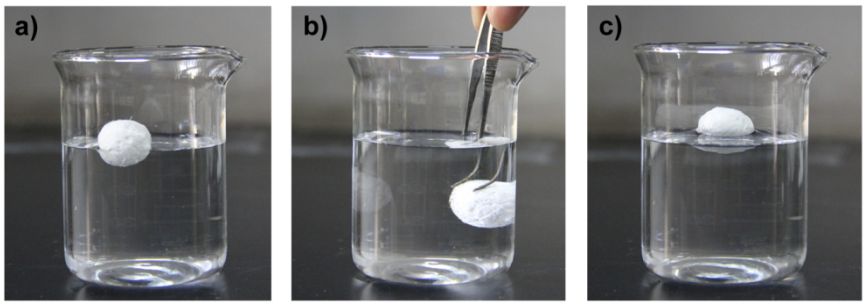

Figure S2. a) A piece of as-prepared spherical PLA oil absorption material were placed in a water bath. The absorption material was floating on the water surface. b) When the PLA absorption material was pressed below the water surface under pressure, c) it immediately floated on the surface of water after release of the pressure and no water uptake was observed during the process.

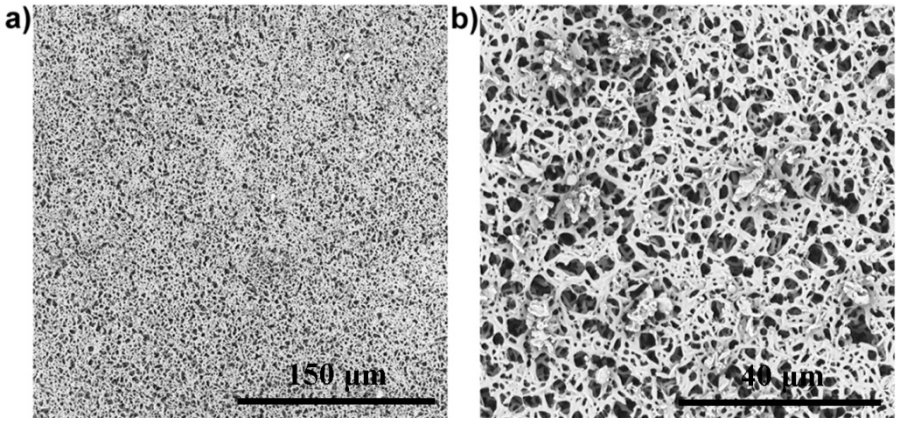

Figure S3. a) Large area and b) magnified SEM images of PLA absorption films after 20 cycles of absorption and desorption. The oil of petroleum ether was removed by volatizing in air. The porous structures remain nearly unchanged.

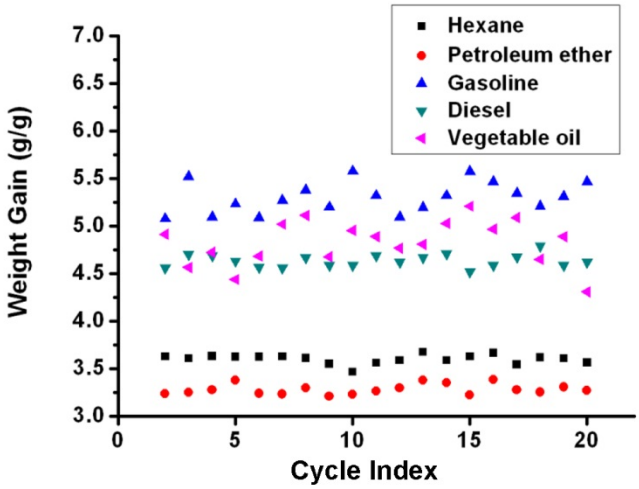

Figure S4. Weight gain after absorption and desorption of different oils and organic solvents for 20 cycles showing stable performance of PLA oil absorption films. The different uptakes are related to the density of the oils and volatility, as well as the measurement error.

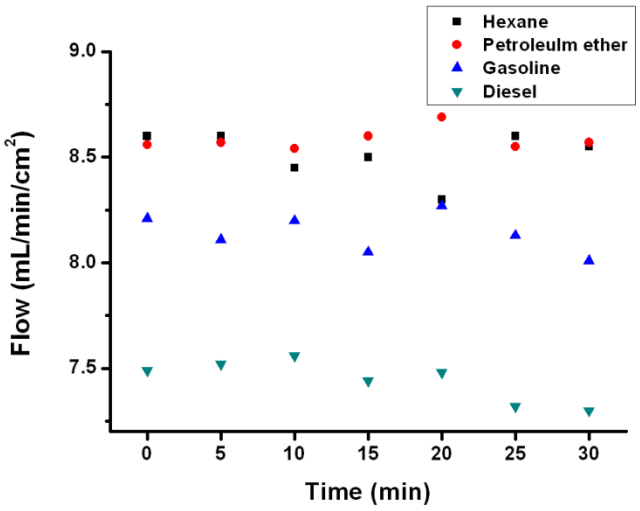

Figure S5. The flow of the as-prepared PLA filtration films is stable during 30 min.

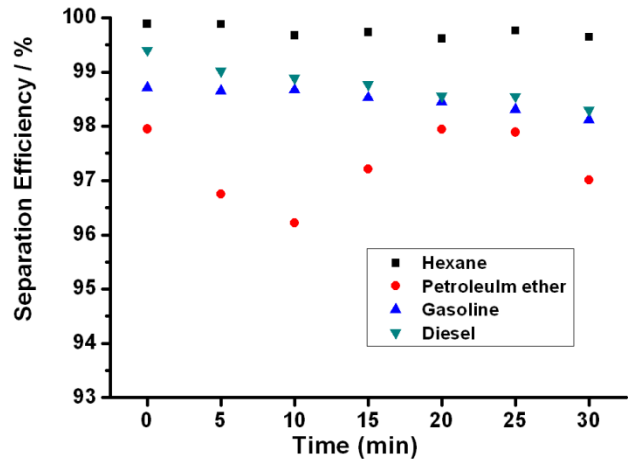

Figure S6. The separation efficiency of the as-prepared PLA filtration films is stable during 30 min.