

Supplementary Material

**Achieving durable hydrophilic modification of
polytetrafluoroethylene (PTFE) through organic/inorganic
hybridization strategy**

Kangjia Ding^{a,b}, Lijuan Wei^{b,c}, Yangfeng Guo^{b,c}, Tingting Zhang^{b,c}, Dongfang
Wang^{b,c}, Yiyang Xu^{b,*}, and Qian Li^{b,*}

^a *School of Materials science & Engineering, Zhengzhou University, Zhengzhou 450001,
P. R. China*

^b *National Center for International Research of Micro-Nano Molding Technology,
Zhengzhou University, Zhengzhou 450001, P. R. China*

^c *School of Mechanics and safety Engineering, Zhengzhou University, Zhengzhou,
450001, P. R. China.*

**Corresponding authors, E-mail: yiyangxu2020@outlook.com*

Address: No. 100 Science Avenue, Zhengzhou, Henan 450001, China

List of Supplementary Materials

- Table S1. Atom percentage results of PTFE, PTFE-R and PTFE-R-O
- Figure S1. The wide-scan XPS spectra of pristine PTFE.
- Figure S2. The wide-scan XPS spectra of PTFE-R.
- Figure S3. The wide-scan XPS spectra of PTFE-R-O
- Figure S4. High-resolution O1s XPS spectra of PTFE-R.
- Figure S5. WCA of PTFE, PTFE-R and PTFE-R-O
- Figure S6. Photographs of PTFE-R-O (a) and samples after heated in deionized water (b), alkaline solution (c) and acidic solution (d) for 48h.
- Figure S7. AFM images and surface roughness of PTFE (a), PTFE-R (b), PTFE-R-O (c) and PTFE-R-O processed in deionized water (d), alkaline solution (e) and acidic solution (f).
- Figure S8. The pollution resistance performance of PTFE-R-O to different simulated solid waste.

Atom	C (%)	O (%)	F (%)	Mn (%)
PTFE	34.5	3.7	61.8	/
PTFE-R	82.5	16.0	1.5	/
PTFE-R-O	35.6	41.4	5.1	17.8

Table S1. Atom percentage results of PTFE, PTFE-R and PTFE-R-O

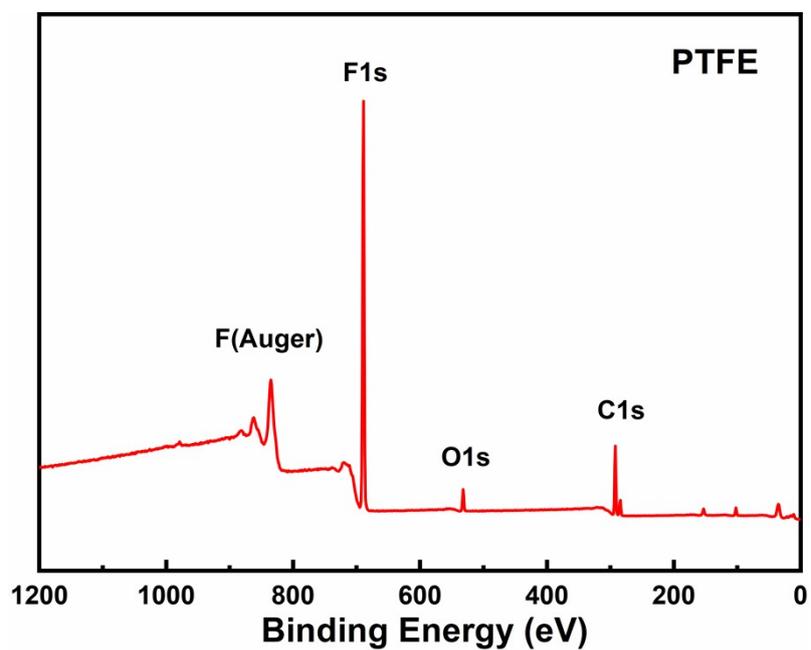


Figure S1. The wide-scan XPS spectra of pristine PTFE

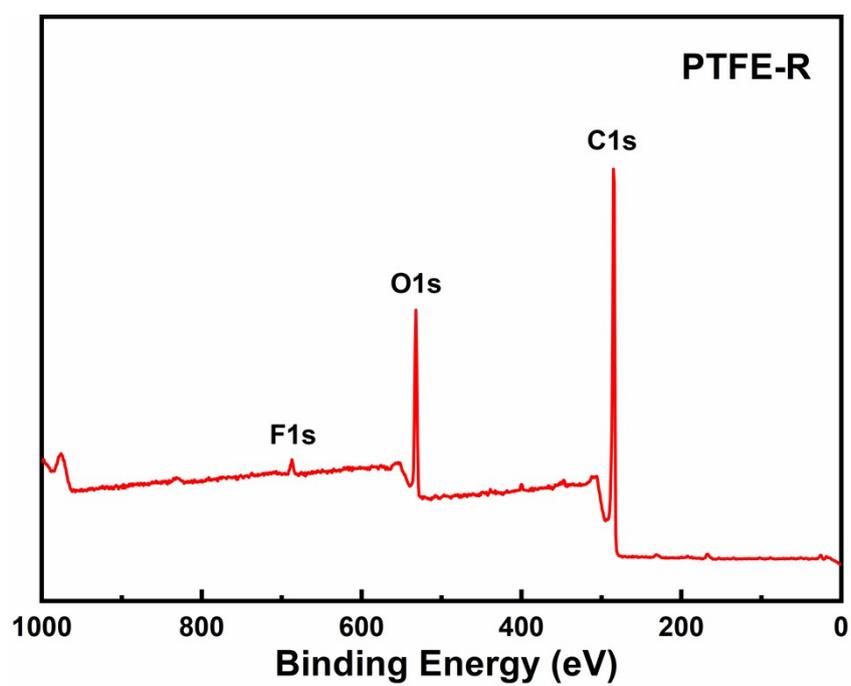


Figure S2. The wide-scan XPS spectra of PTFE-R

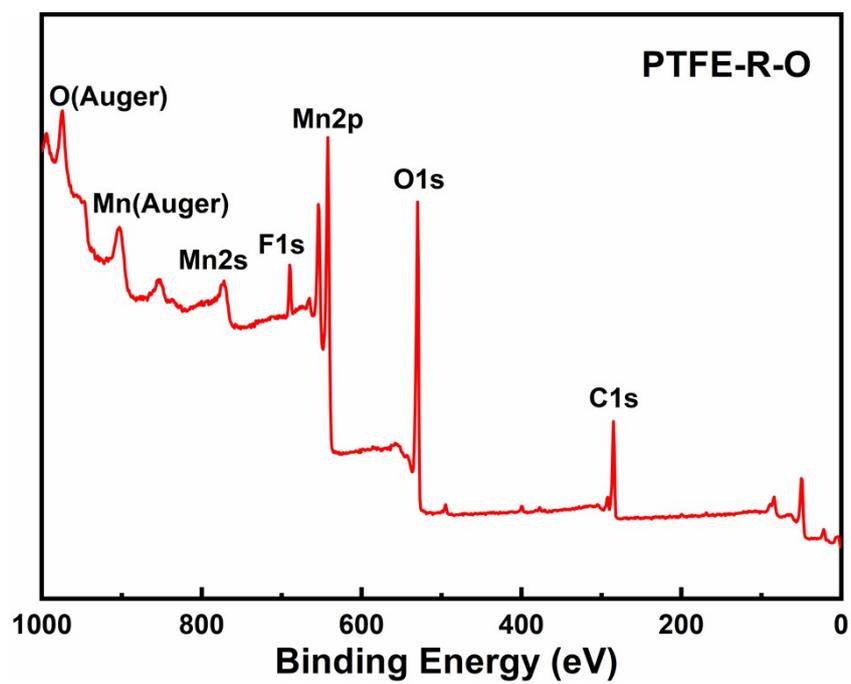


Figure S3. The wide-scan XPS spectra of PTFE-R-O

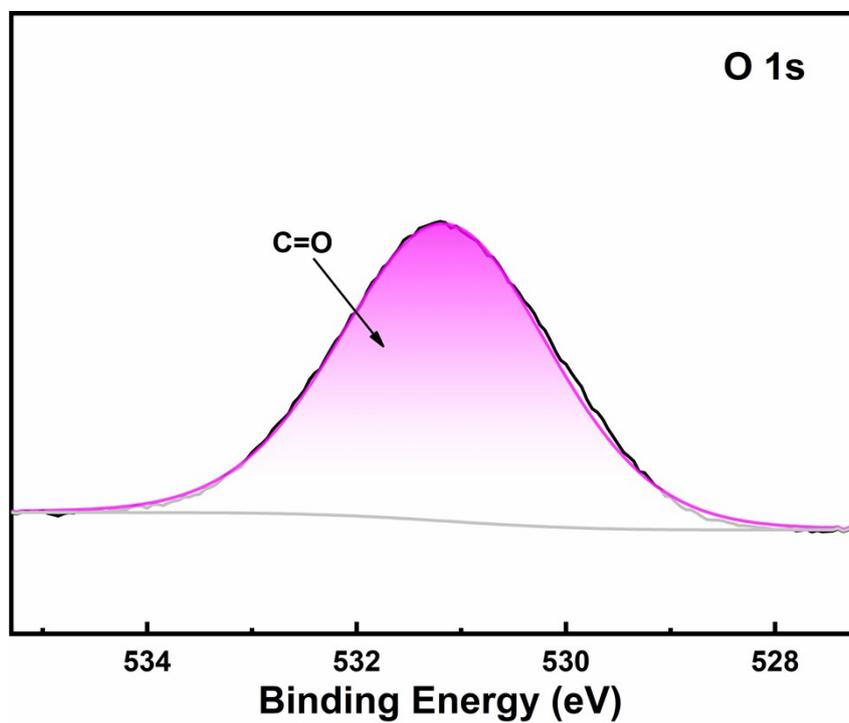


Figure S4. High-resolution O_{1s} XPS spectra of PTFE-R.

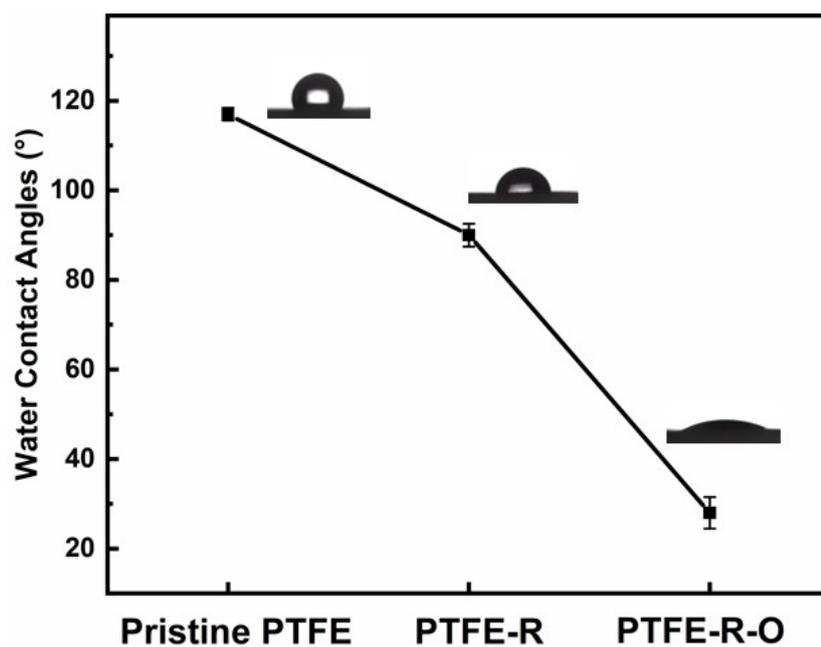


Figure S5. WCA of PTFE, PTFE-R and PTFE-R-O

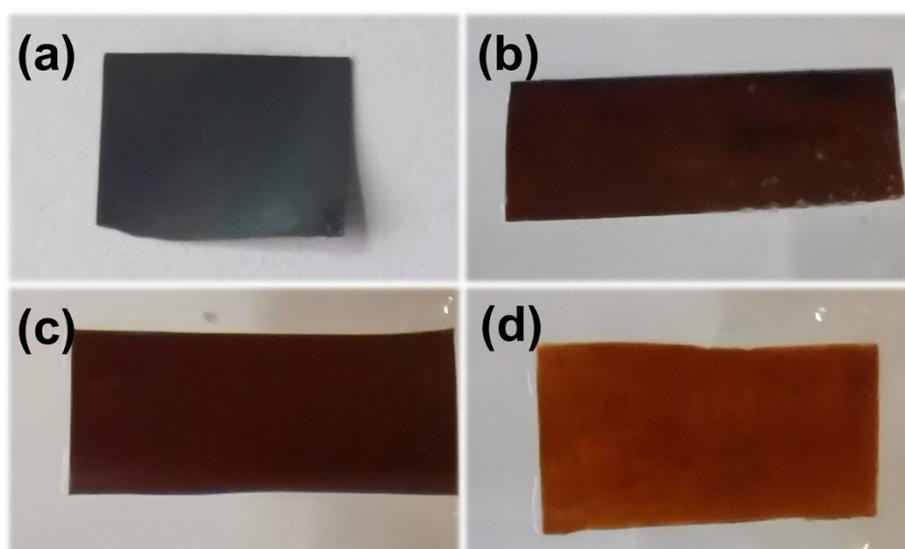


Figure S6. Photographs of PTFE-R-O (a) and samples after heated in deionized water (b), alkaline solution (c) and acidic solution (d) for 48h.

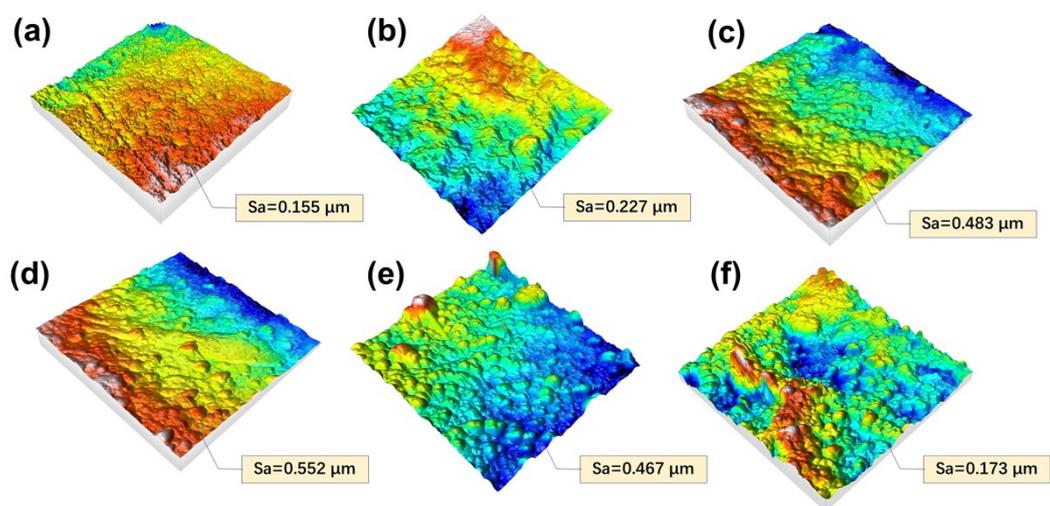


Figure S7. AFM images and surface roughness of PTFE (a), PTFE-R (b), PTFE-R-O (c) and PTFE-R-O processed in deionized water (d), alkaline solution (e) and acidic solution (f).



Figure S8. The pollution resistance performance of PTFE-R-O to different simulated solid waste.