Electronic Supplementary Material (ESI) for RSC Advances.

Fabrication of Porous Fe_2O_3/PTFE Nanofiber Membranes and Their Application as Catalyst for Dye Degradation

Weimin Kang,[a] Fu Li,[a] Yixia Zhao,[b] Chunmei Qiao,[a] Jingge Ju,[a] and Bowen Cheng*[b]

a. School of Textile, Tianjin Polytechnic University, Tianjin, 300387, P.R. China

b. State Key Laboratory of Separation Membranes and Membrane Processes, Tianjin, 300387, P.R. China

Corresponding author:

E-mail address: bowen15@tjpu.edu.cn

TG analysis

Thermal stability PTFE/PVA/BA nanofiber membrane of was investigated by TG/DTA 6300 thermogravimetric analyzer with 2 mg sample at the heat rate of 10 ºC/min in the range of 25-500 ºC.

XRD analysis

The changes of the crystal phase of PTFE nanofiber membrane were characterized with D/MAX-2500 X-ray diffractometer (XRD, Japan Rigaku).

BET analysis

The Brunauer-Emmet-Teller specific surface area of the as-spun PTFE/PVA/BA nanofiber membrane and the Fe_2O_3/PTFE nanofiber membranes were determined using a high-speed automated area and pore size analyzer (3H-2000PS1, Beijing).

Fig. S1 The photo of the electrospinning device

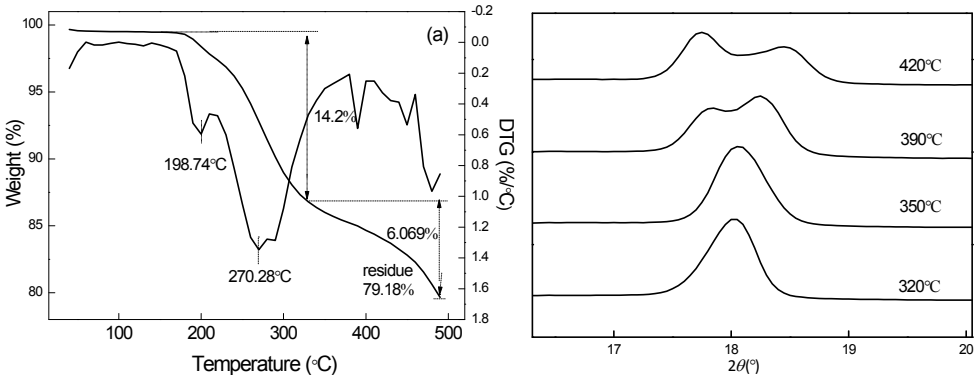

Fig. S2 The TG curve of and XRD patterns of PTFE/PVA/BA nanofiber membrane

Discussion of Fig. S2 The peak at 198.74 ºC was attributed to the decomposition of BA and the peak at 270.28 ºC was due to the decomposition of PVA. The PTFE nanofiber membrane was obtained via calcining the as-spun PTFE/PVA/BA nanofiber membrane. In the XRD patterns, the crystal structure changed due to the molecular chain motion when the calcination temperature higher than 390 ºC. Then the calcination temperature was set as 390 ºC.

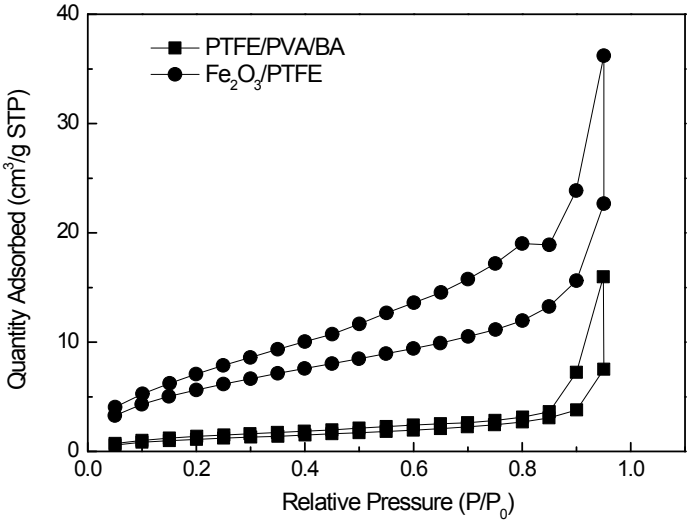

Fig. S3 The N_2 adsorption isotherms at 77 K of samples