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Supporting information

Efficient removal of high- or low-concentration copper ions *via* diethylenetriamine-grafted electrospun polyacrylonitrile fibers

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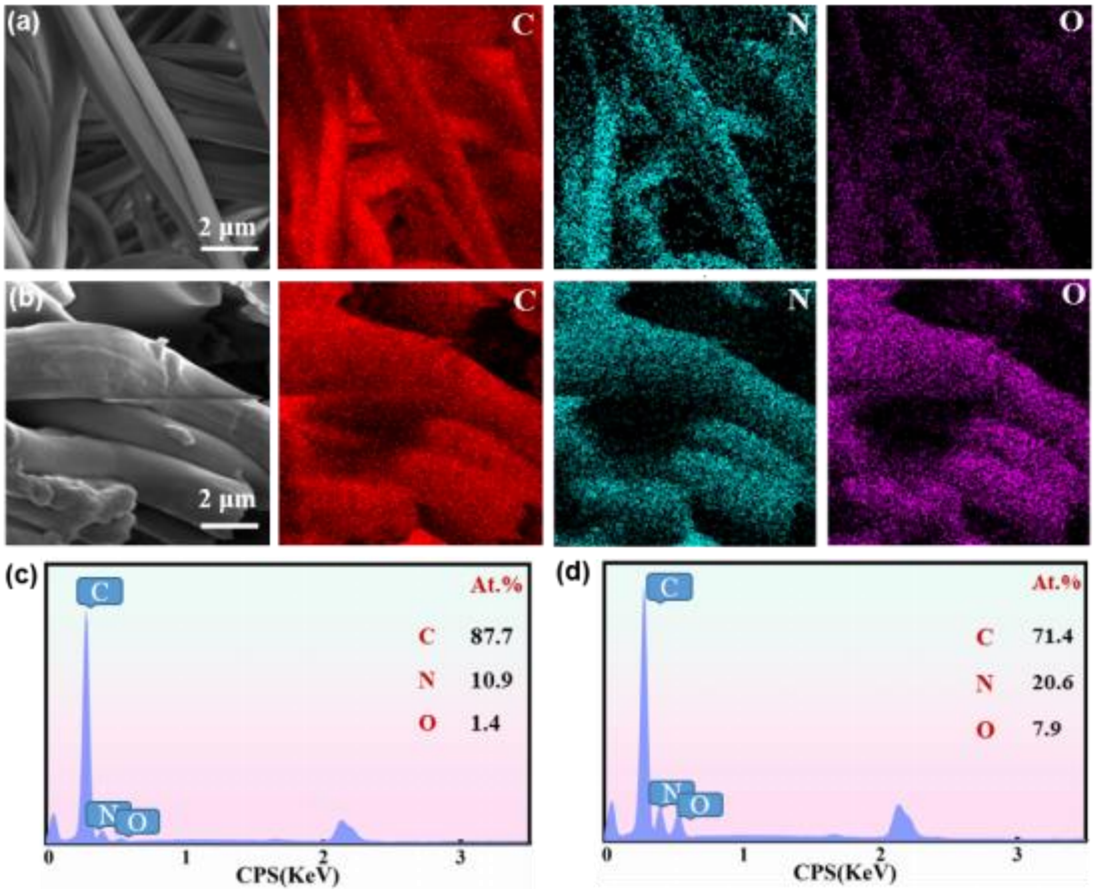

Fig. S1. Mapping of (a) PANFs and (b) PAN-DETA; EDS of (c) PANFs and (d) PAN-DETA.

From the structural analysis of PANFs and PAN-DETA, it could be seen that both fibers contained C, N, and O elements, but the content of elements was different. The PANFs had a smooth surface with a certain distance between fibers (Fig. S1a). And the C, N, and O elements were evenly distributed on the surface of PANFs. After the reaction, PAN-DETA expanded and the surface became rough due to the addition of DETA (Fig. S1b). As shown in Fig. S1 c and d, the N and O contents of PAN-DETA increased significantly compared to PANFs. The results showed that the DETA was successfully grafted onto the surface of PANFs.

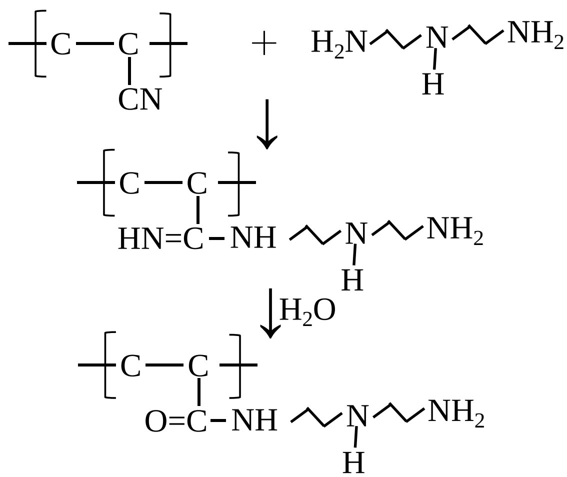

Fig. S2. The principle of DETA branching on PAN.

Table S1. The comparison of the maximum adsorption capacities of PAN-DETA and reported adsorbents.

Adsorbents	Adsorption equilibrium time (min)	q_{max} (mg/g)	Ref.
PAO	500	17.34	1
ICF	120	14.8	2
DAVFs-Cs	660	322	3
C2@3-HPS#500	350	493	4
$PAN_{p\text{-}PMOD}F$	300	150.44	5
$MgFe_2O_4$	120	283.13	6
$PAN/TiO_2/PANI$	300	16.6	7
PP-PAM	300	171.30	8
PANI/JF	30	8.43	9
Kapok fibers	120	2.35	10
Fe_3O_4 fibers	50	16.78	11
PAAc	60	7.18	12
PAN/PEI/MWCNT-COOH	480	346	13
PAN/TiO_2-CS	60	160.1	14
Nonwoven geotextiles	840	38.99	15
PAN-DETA	180	349.25	**This work**

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