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Fig. S1 XRD spectra of PEEK-PEMs with IECs of 1.73-3.08 mmol/g. The separated peaks attributing to amorphous halo and (110), (111), and (200) planes of PEEK with an amorphous PSSA graft peaks were shown as dotted lines.



Fig. S2 Change in the relative weight of PEEK-PEMs with IECs of 1.73, 2.36, and 3.08 mmol/g in Fenton's reagent $(3\% H_2O_2, 2 \text{ ppm FeSO}_4)$ at 80 °C.