

An ordered nanocomposite of organic radical polymer and mesocellular carbon foam as cathode material in lithium ion batteries

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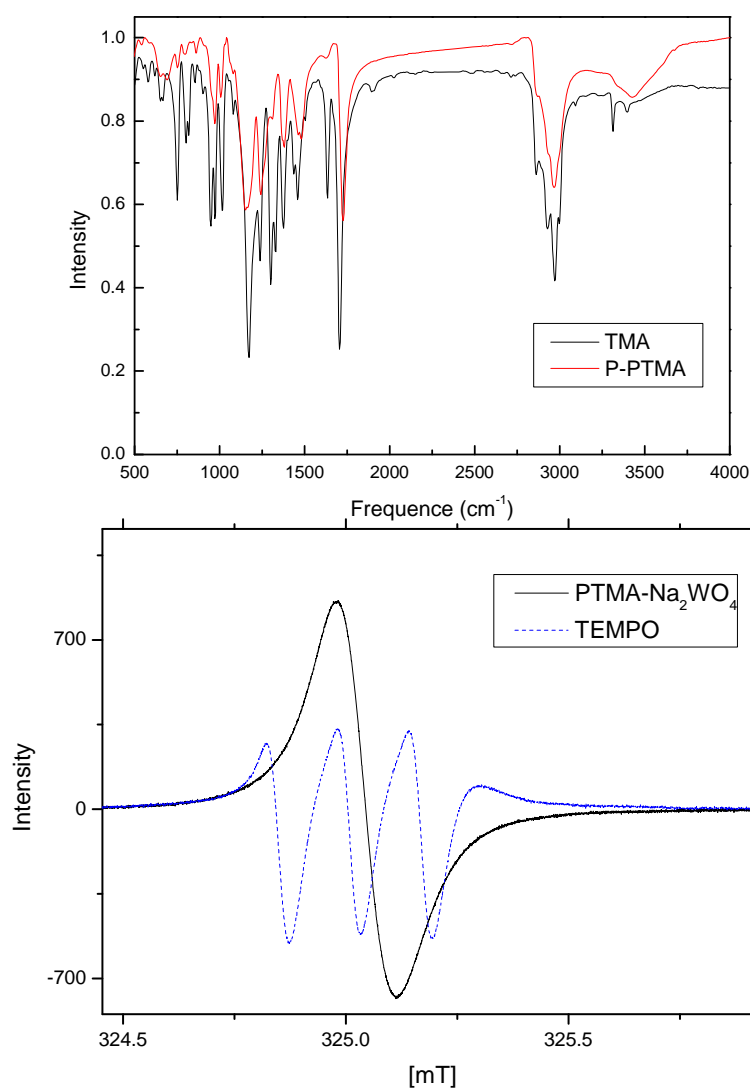


Fig. S1. (upper) Change of IR spectra after polymerization TMA monomer (lower) Electron paramagnetic spectroscopy results of TEMPO radical and the prepared PTMA radical polymer. The radical concentration was calculated by double-integration of EPR spectra, which produced 99.9% radical concentration of PTMA of theoretical radical spin concentration (2.5×10^{12} spins/g).

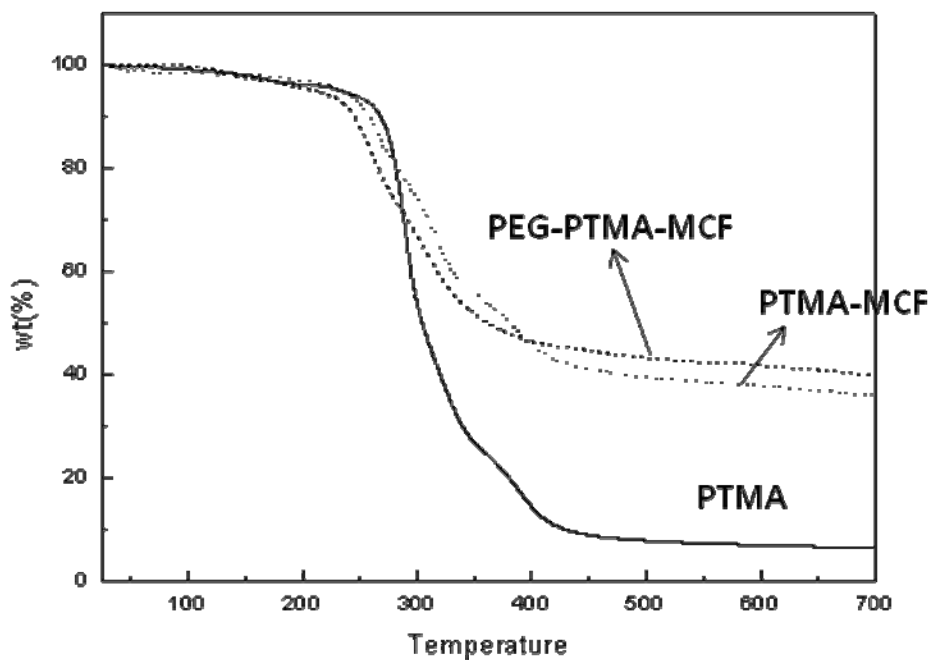


Fig. S2. Thermogravimetric analysis (TGA) of PTMA, PTMA-MCF and PEG-PTMA-MCF under N₂ atmosphere to 700 °C at 5 °C/min. From the weight loss change in PEG-PTMA-MCF, the loaded PEG was estimated to be 3.6 wt%.

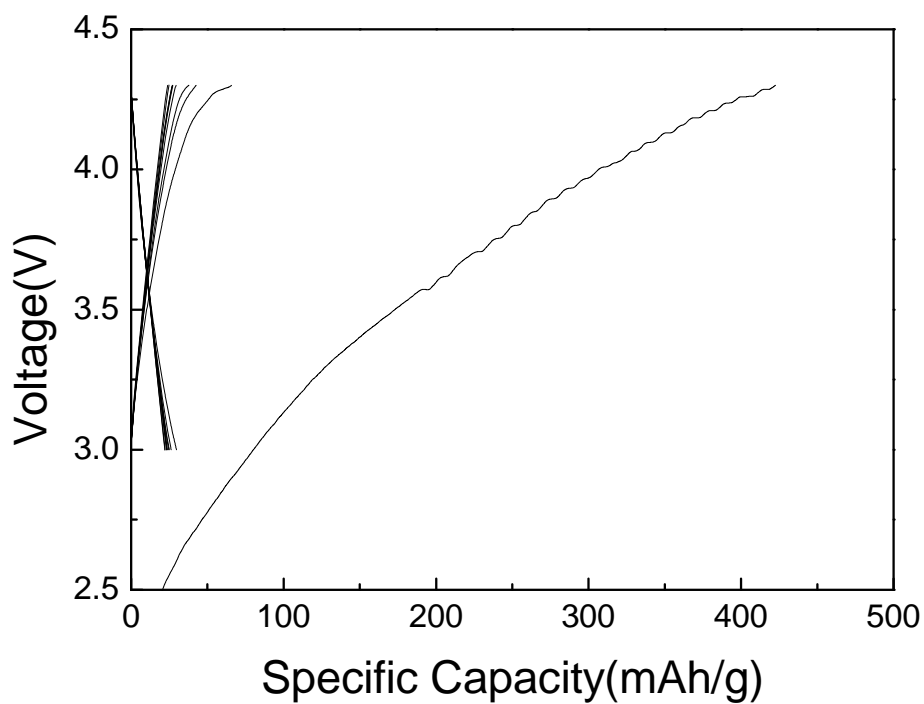


Fig. S3. Galvanostatic charge-discharge pattern of MCF electrode at 1 C current rate from 3.0 to 4.3 V vs. Li/Li^+ . Large irreversible charging capacity was possibly due to the electrolyte decomposition on the surface functional group and possible water decomposition trapped at the carbon surface.

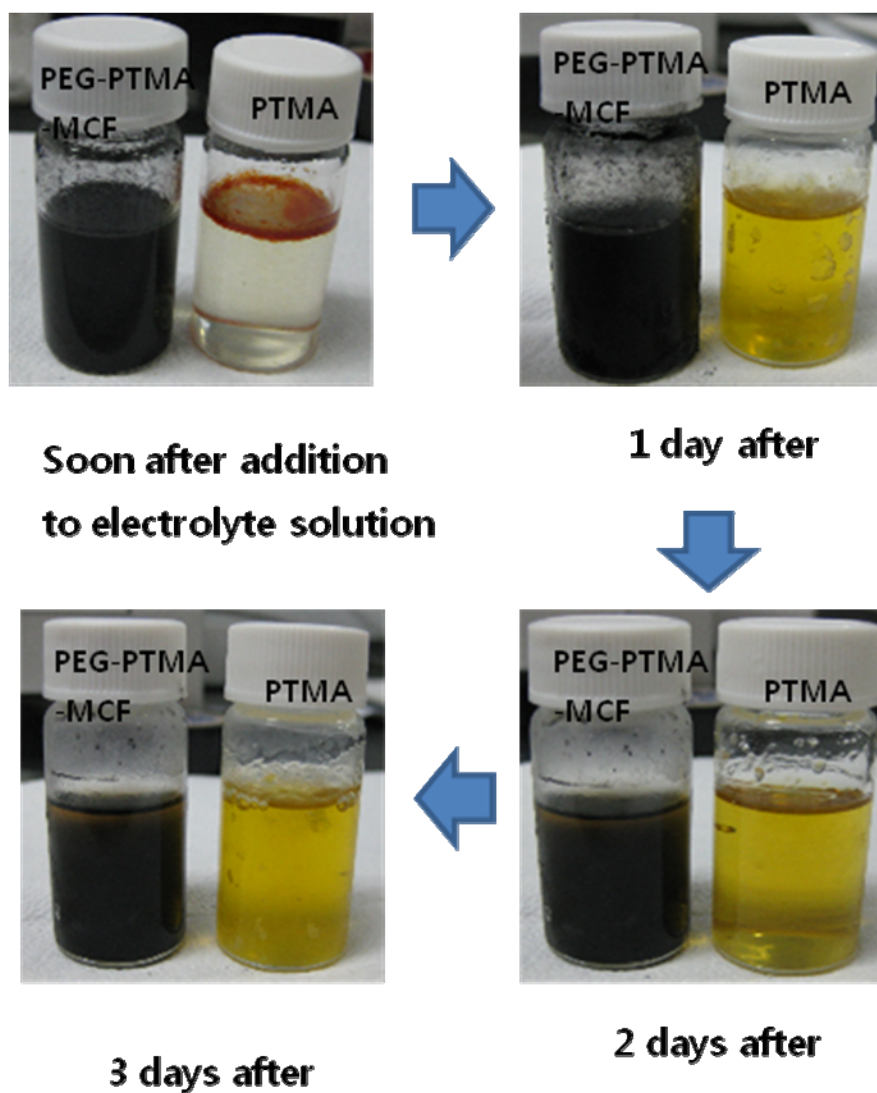


Fig. S4. Dissolution experiment of PTMA and PEG-PTMA-MCF in at 50 °C. Here, 0.1 g materials were dissolved in 5 mL electrolyte solution of 1.0 M LiPF₆ in EC/ DMC.