

Supplementary Materials: Simple One-Pot Syntheses and Characterizations of Free Fluoride- and Bifluoride-Containing Polymers Soluble in Non-Aqueous Solvents

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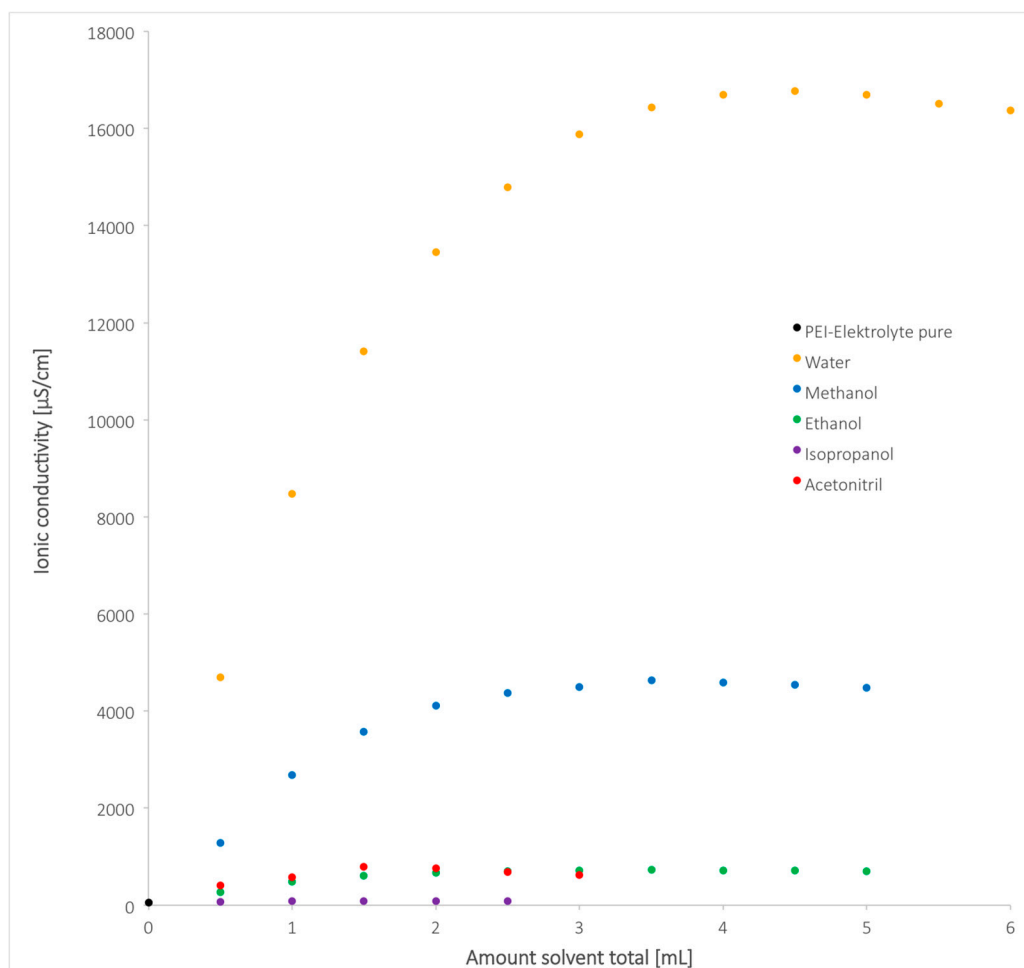
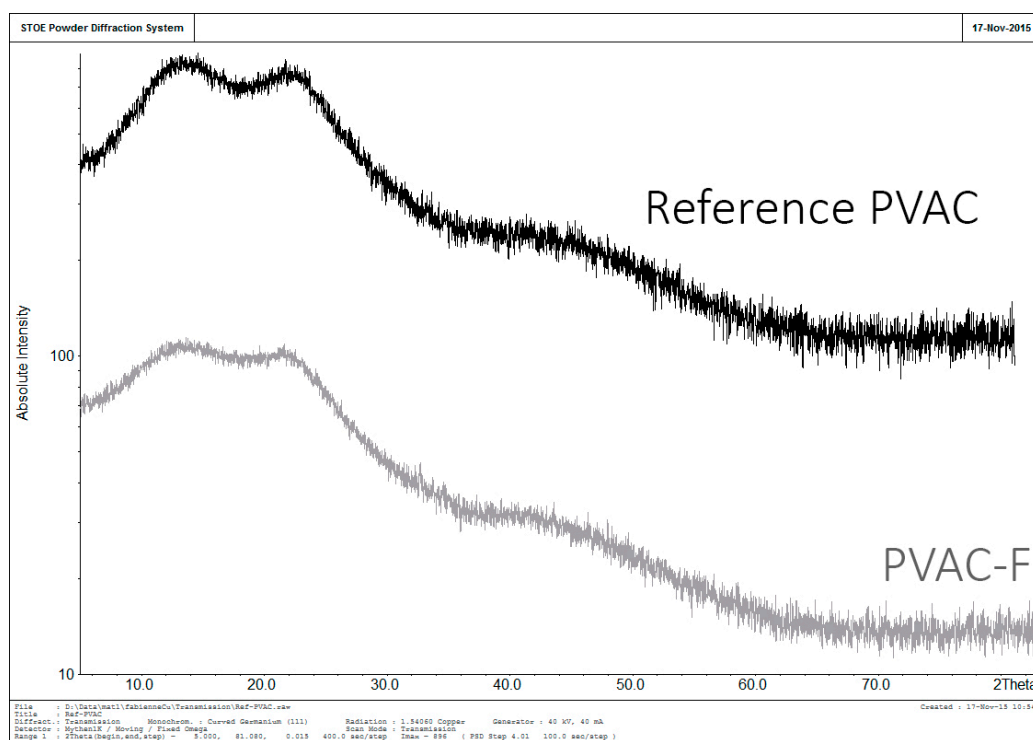
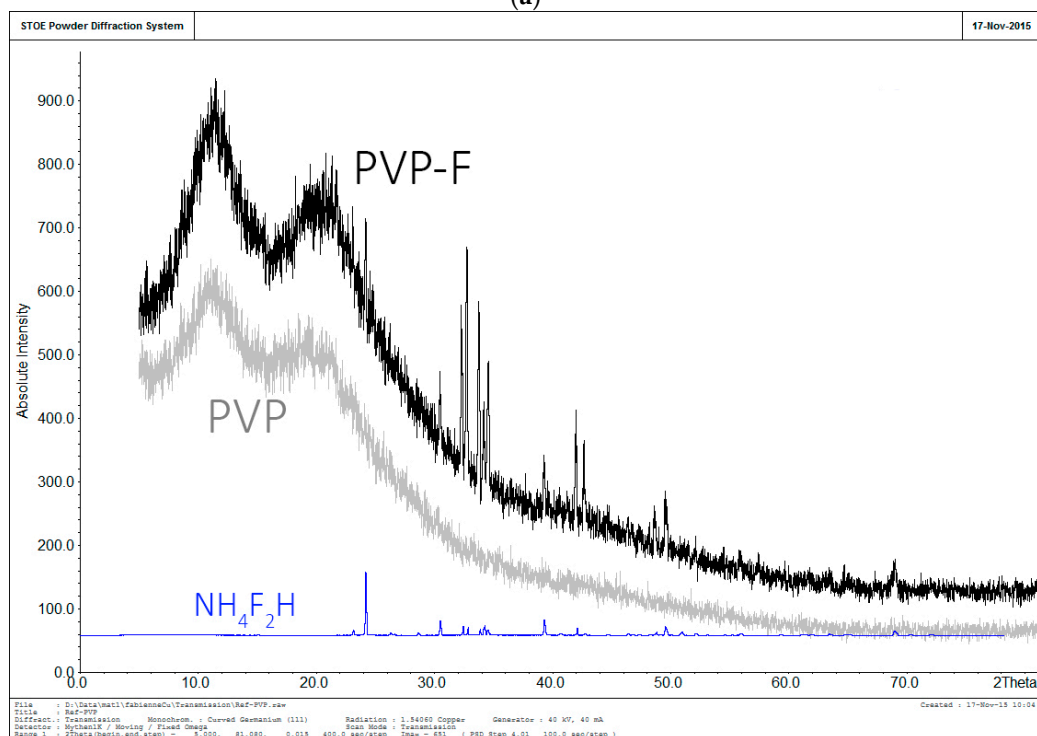


Figure S1. Conductivity depending on solvent.



(a)



(b)

Figure S2. PXRD of PVP-F (with remaining starting product, before it was recrystallized) and PVAC-F. (a) PVCA with and without fluoride doping; (b) PVP pure polymer, PVP-F and starting material NH₄F₂H₂.

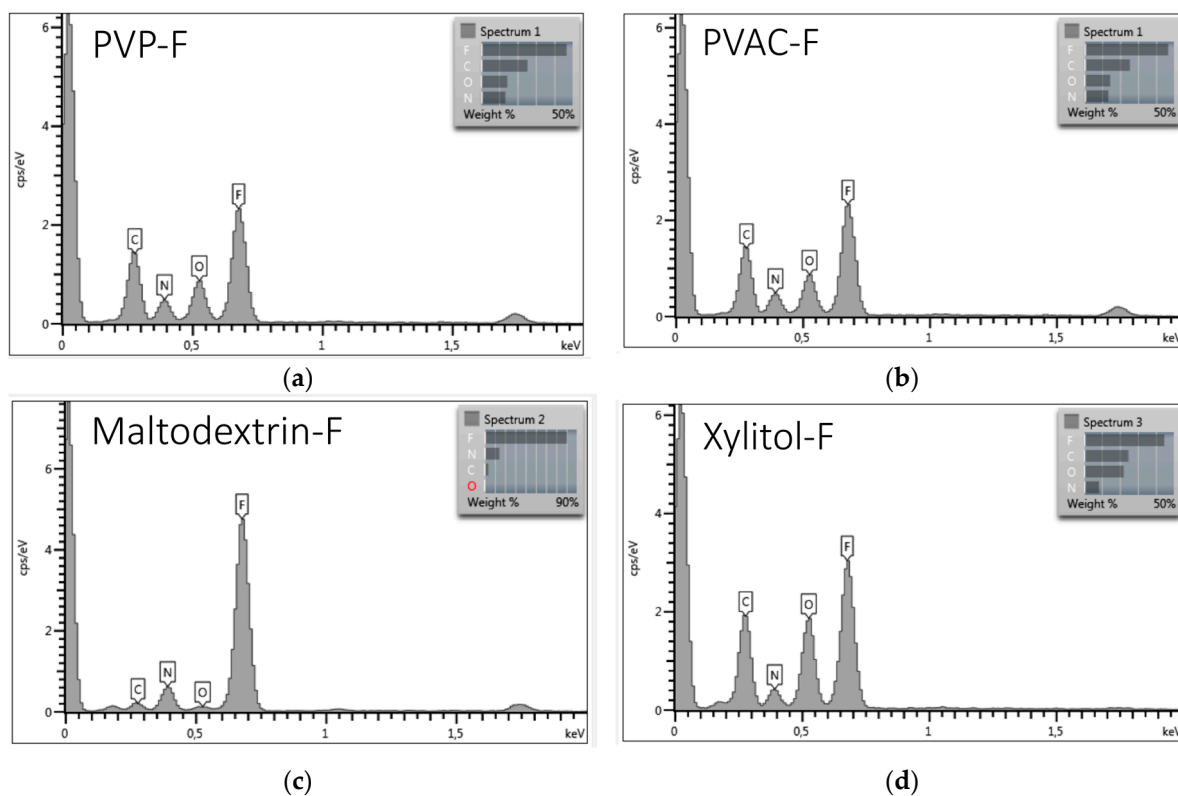


Figure S3. EDX-analysis of different electrolytes after synthesis and purification. (a) PVP-F; (b) PVAC-F; (c) Malto-F; (d) Xy-F [1].

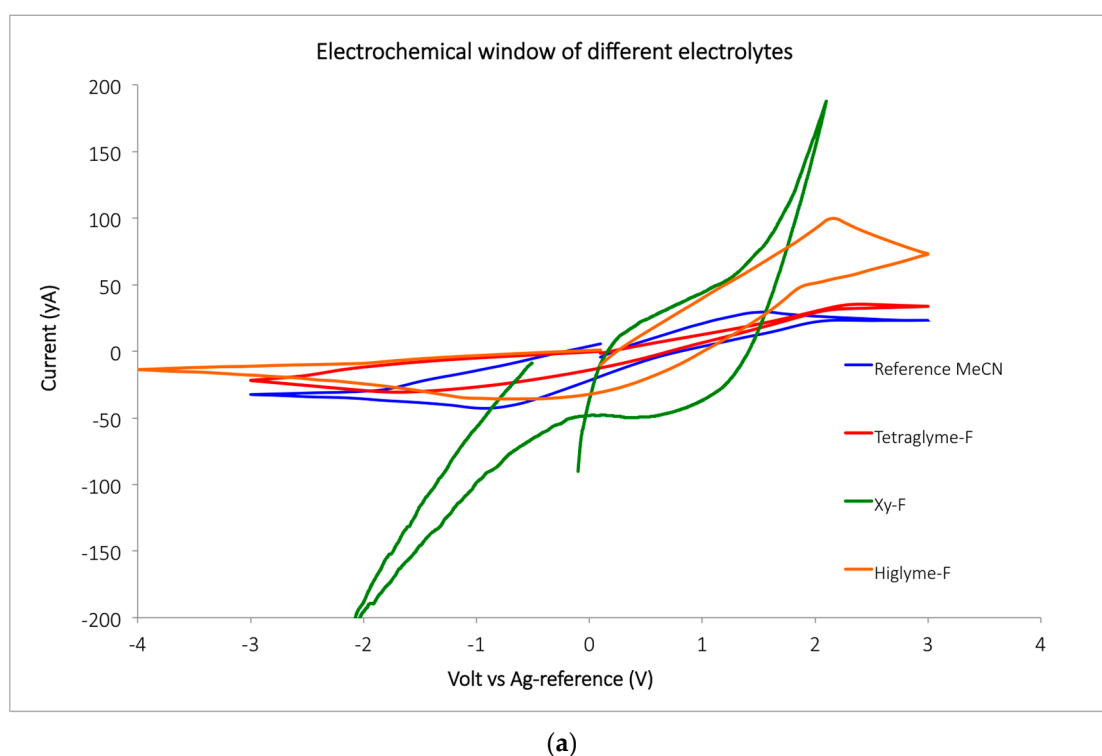
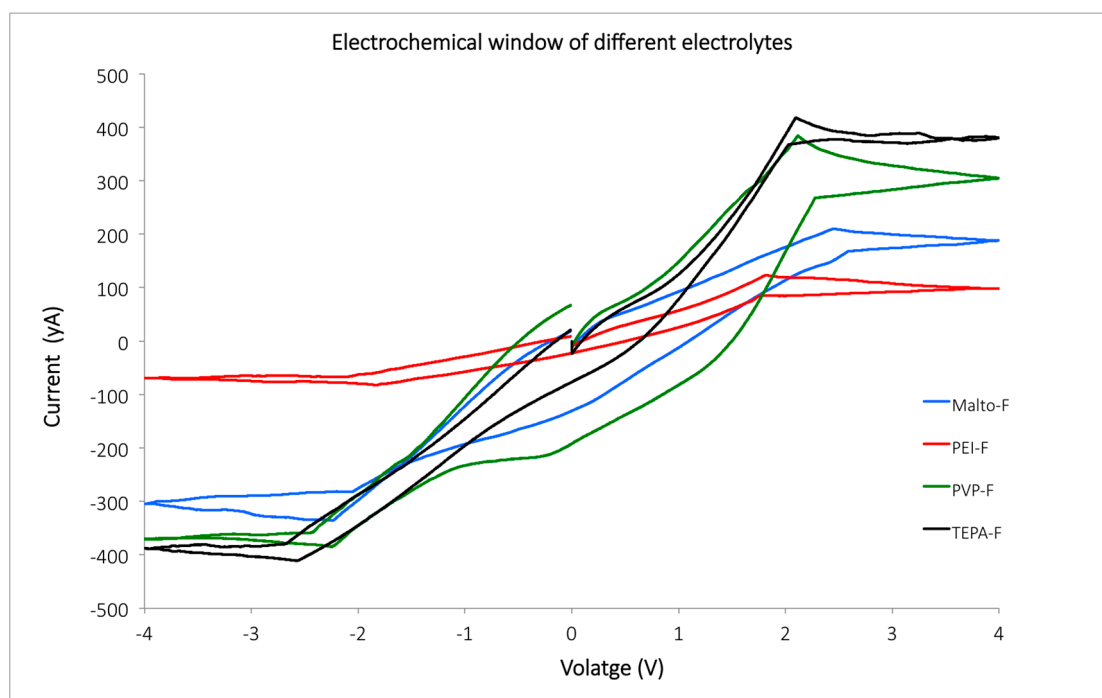


Figure S4. Cont.



(b)

Figure S4. Cyclic voltammograms of the different electrolytes and MeCN as reference. (a) Reference MeCN, Reference TGBF, Xy-F and Reference Higlyme with bifluoride; (b) Malto-F, PEI-F, PVP-F, TEPA-F.

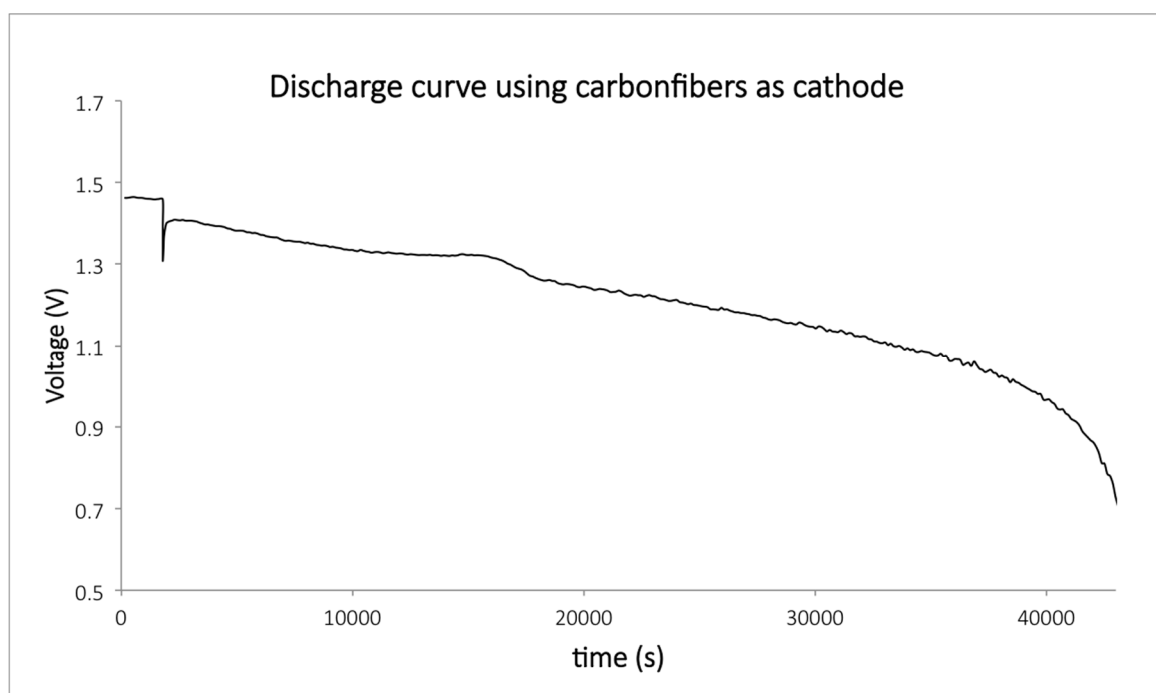


Figure S5. Carbon Fibers.

Discharge curve using carbon fiber fabric: Carbon fiber fabric (Kynol) was used as cathode material and coated with NH_4AlF_6 , Mg was used as anode and Xy-F as electrolyte.

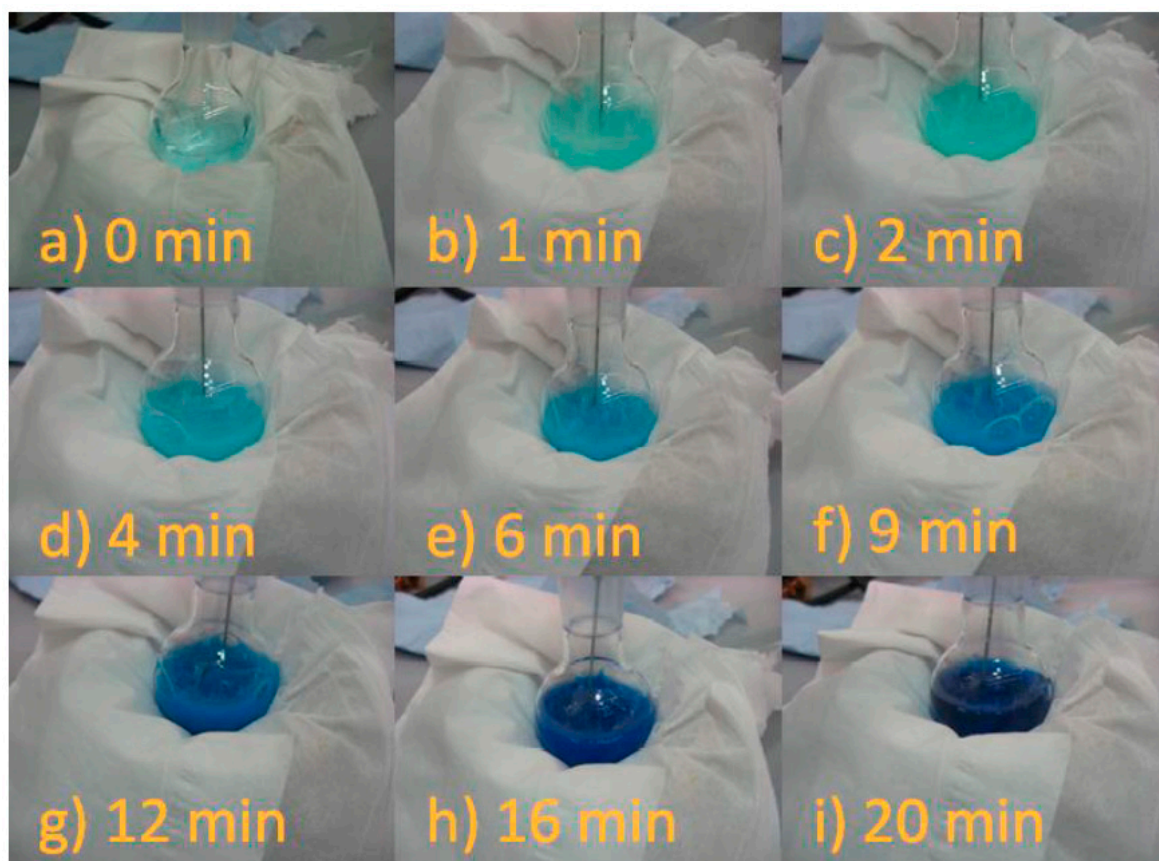


Figure S6. Evolution of ammonia: time-depending incoming of NH_3 evolution into a Cu(II) -containing solution, the formation of copper tetramine can be observed.

Reference

1. Vandi, L.-J.; Truss, R.; Veidt, M.; Rasch, R.; Heitzmann, M.T.; Paton, R. Fluorine Mobility During SEM-EDX Analysis: A Challenge for Characterizing Epoxy/Fluoropolymer Interfaces. *J. Phys. Chem. C* **2013**, *117*, 16933–16941.