Supporting Information

Parametric Investigation of Room-temperature Fluoride-ion Batteries: Assessment of Electrolytes, Mg-based Anodes, and BiF_3-Cathodes

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Figure S1: SEM/EDX of separator fibers (Whatsman filter)

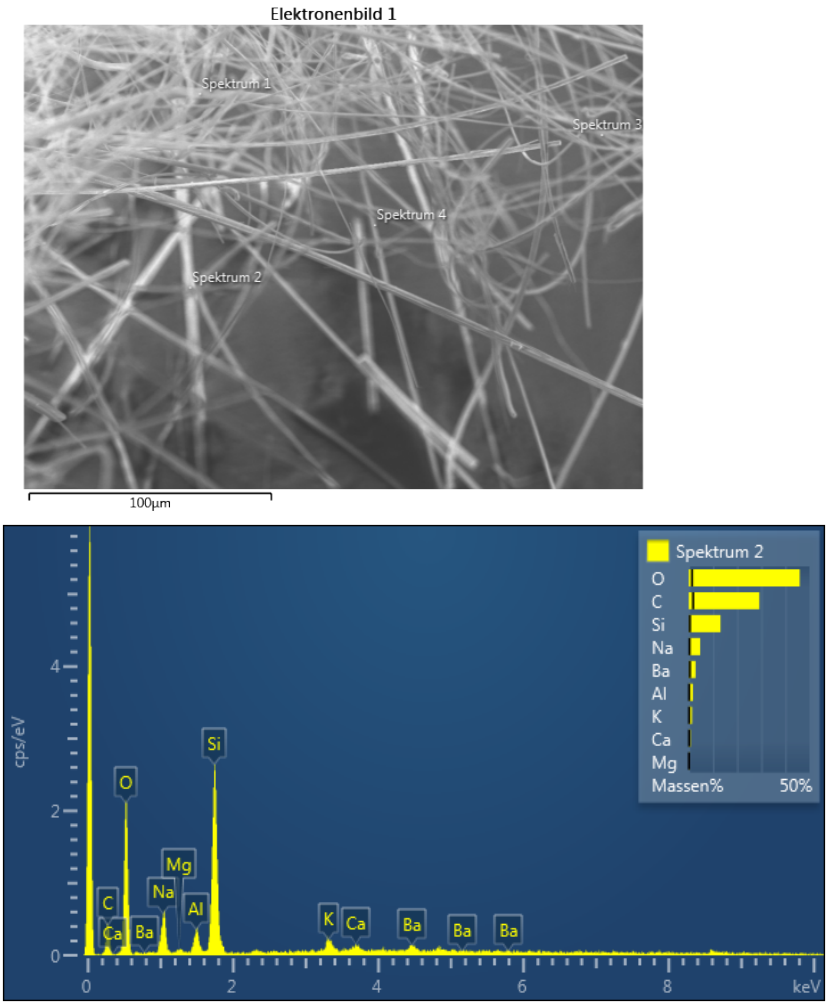


Figure S2: IR spectra of the three electrolyte; **TG (1)**, **Hi (2)** and **PEO (3)** with ammonium bifluoride as reference

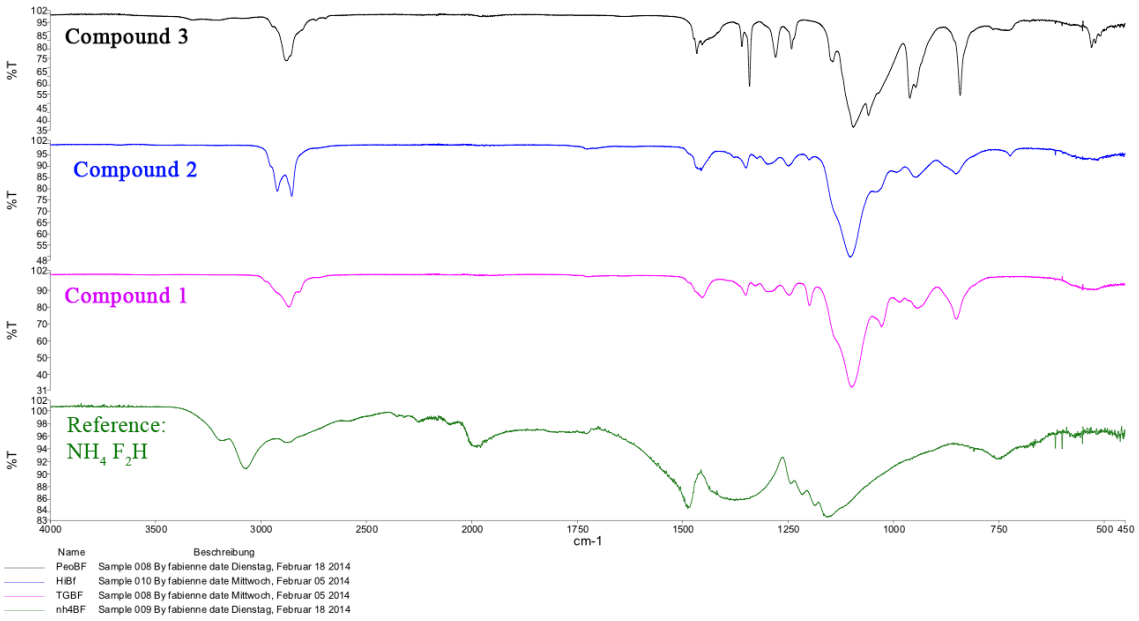


Figure S3: PXRD of two typical BiF_3-cathodes after discharge

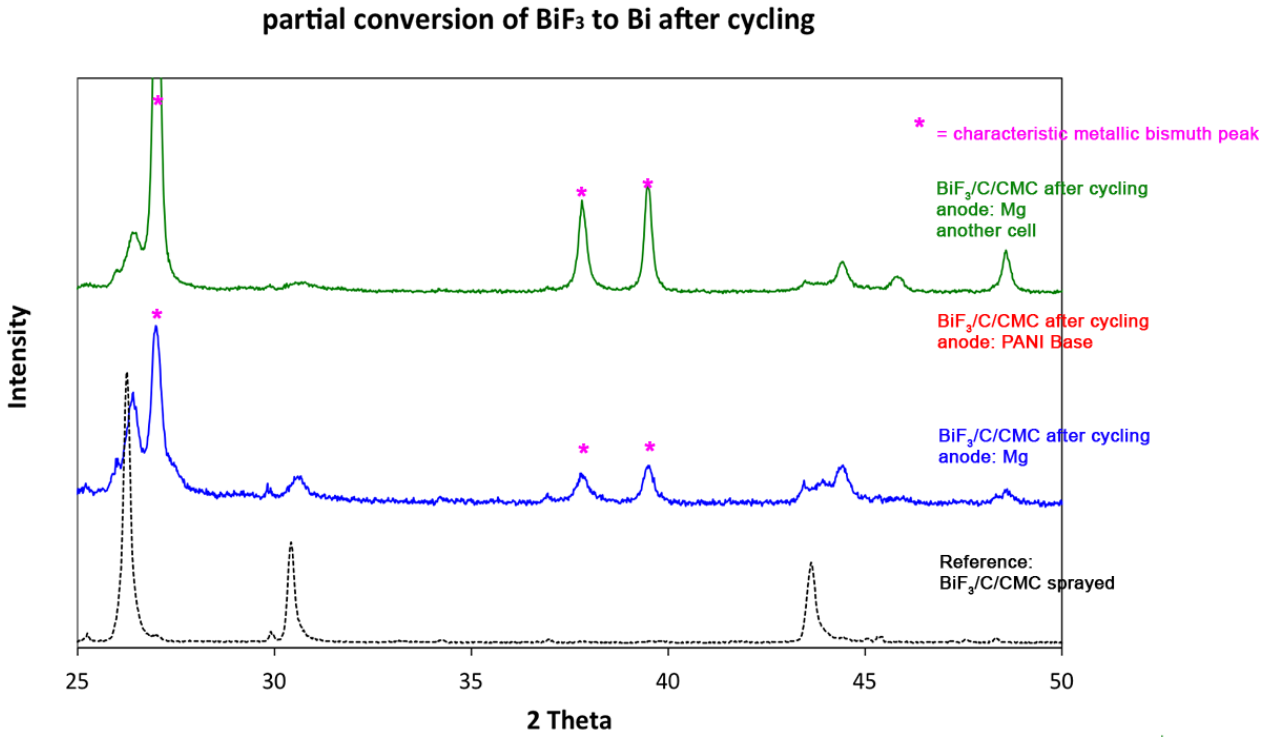
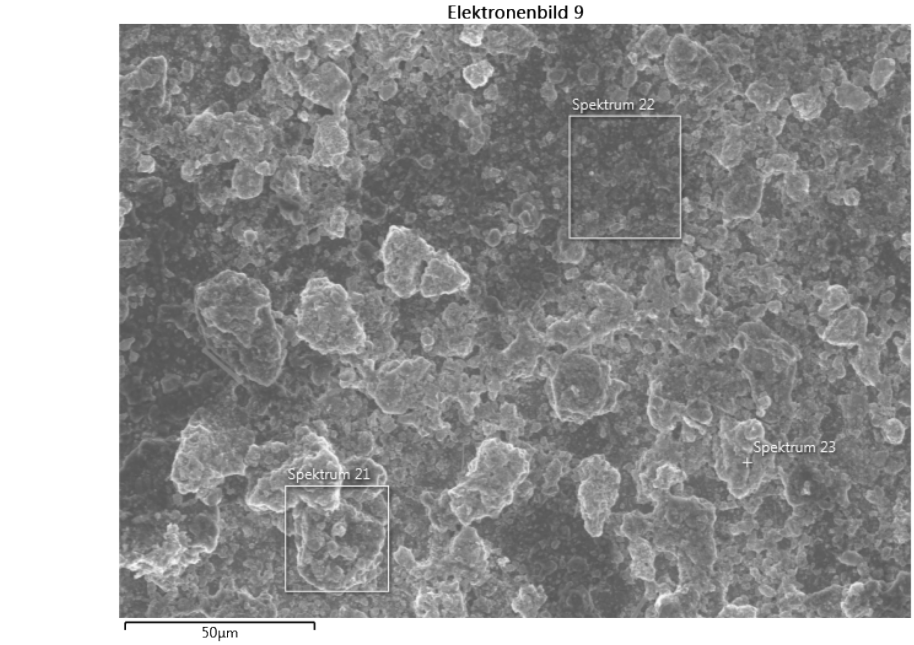
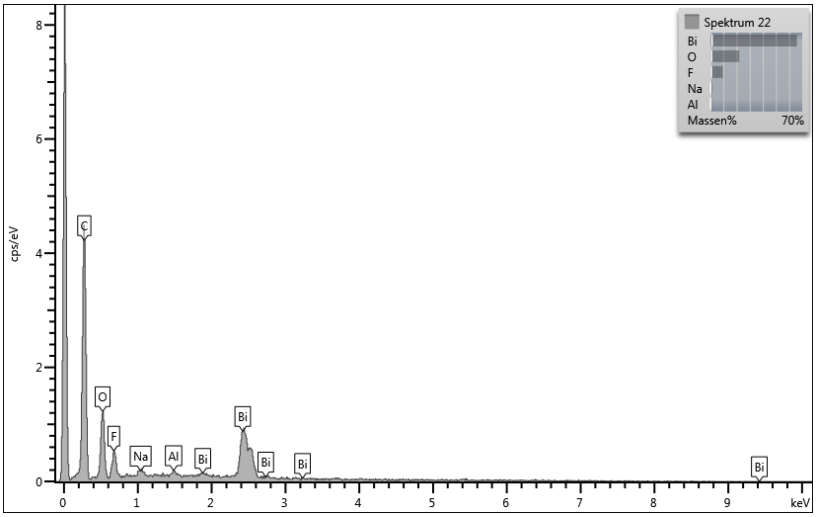
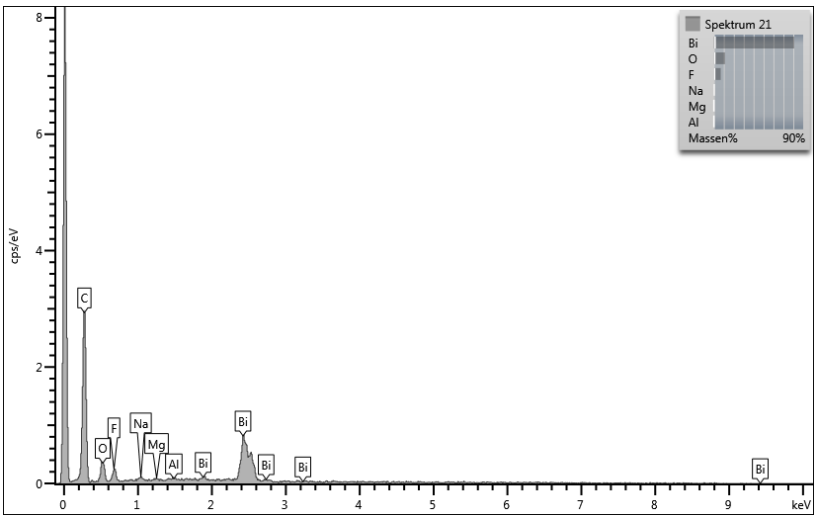


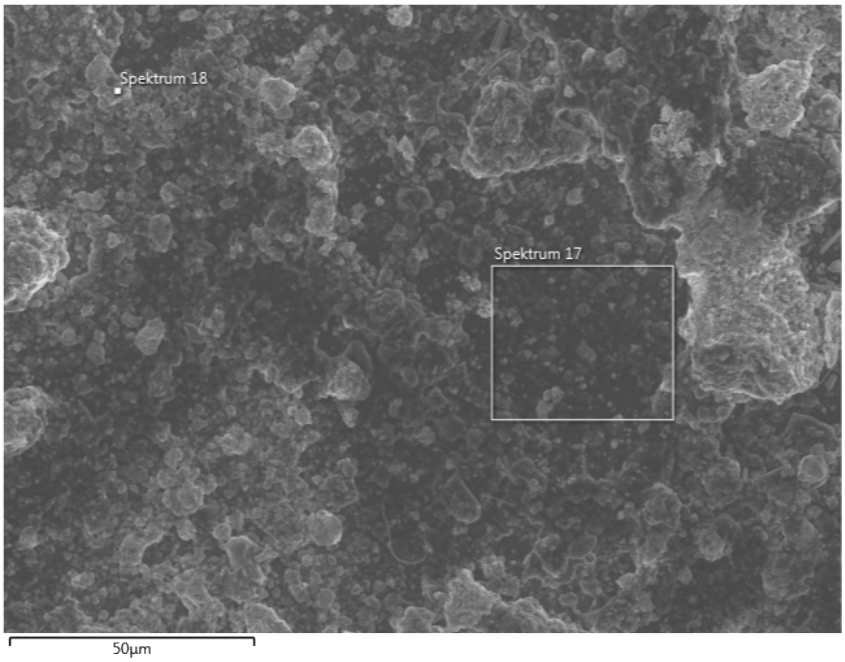
Figure S4: BiF_3-cathode supplemental SEM/EDX measurement

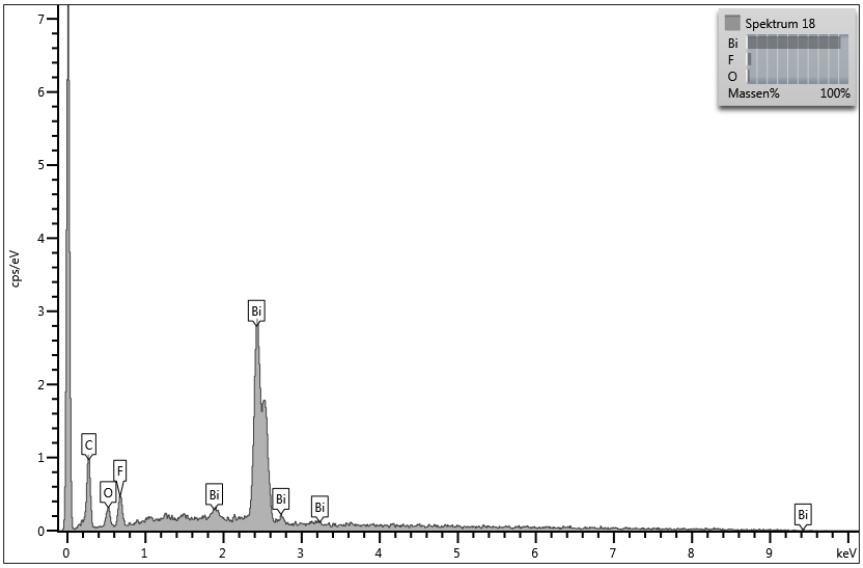






Elektronenbild 7





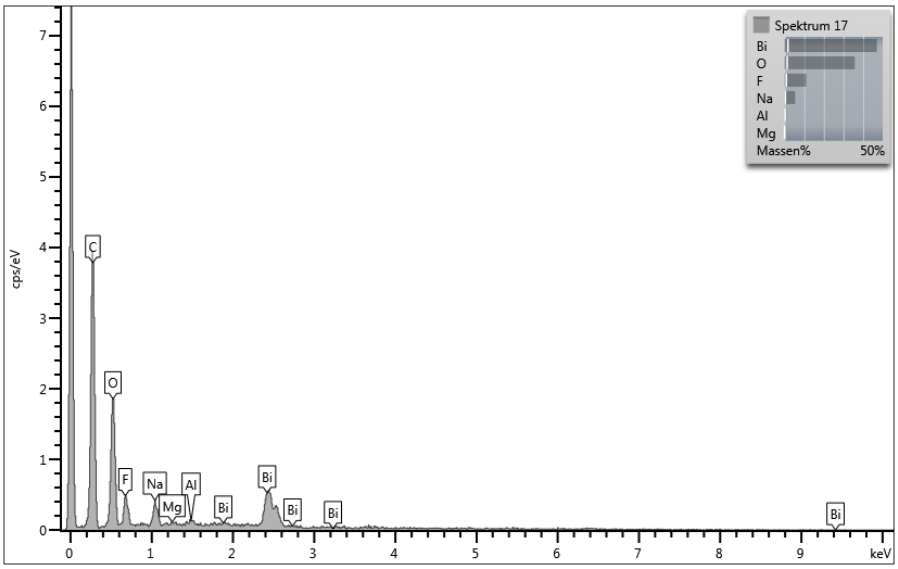
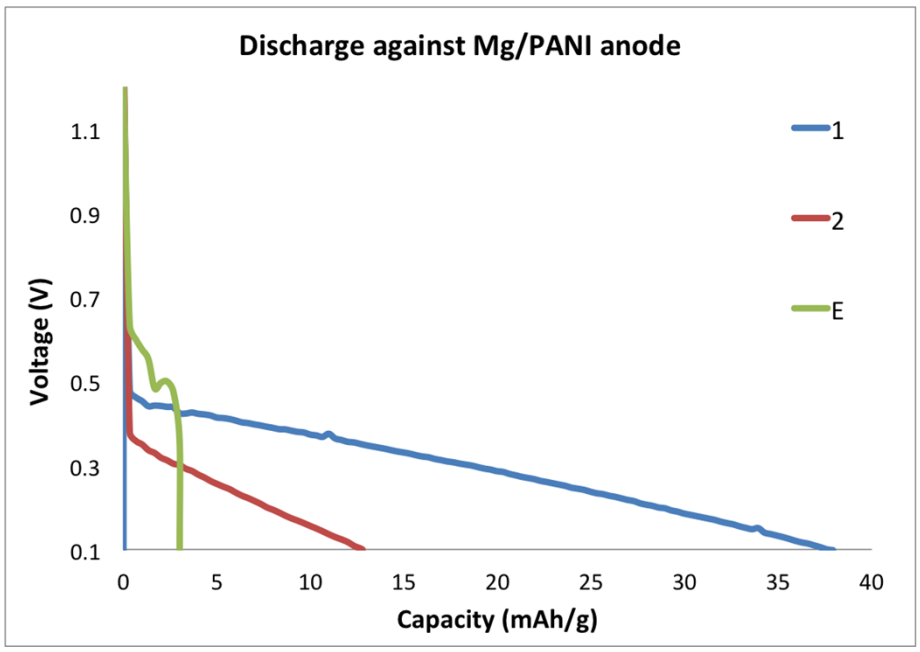


Figure S6: Mg/PANI composite electrode, first discharge capacity, with three different electrolytes; TG(**1**), Hi(**2**) and PEG6000(**E**)



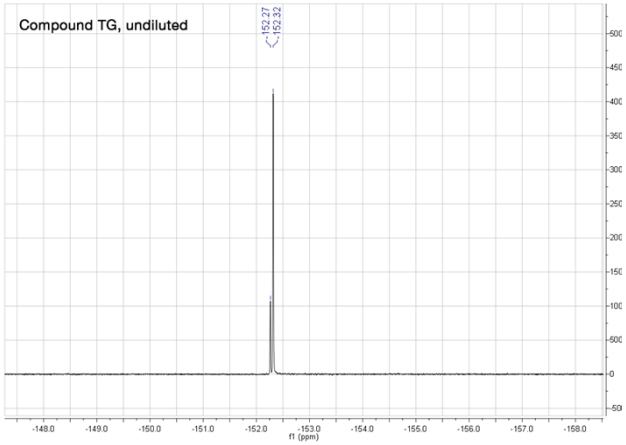
Results from ICP-OES measurement, content of Mg ions and Na ion in the separators

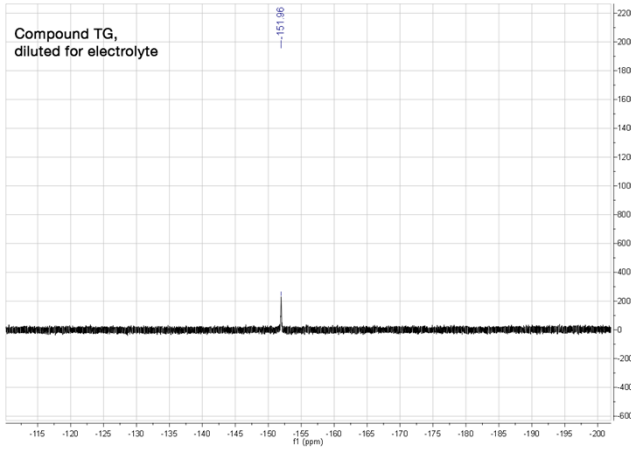
Prüfergebnisse:

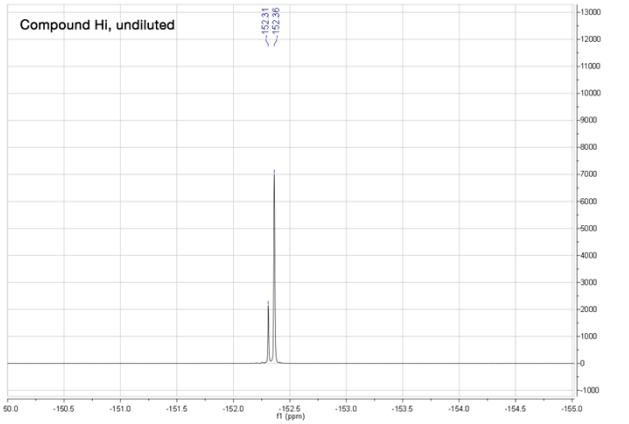
Probenbezeichnung		Magnesium	Natrium
Auftraggeber	Labornummer	mg/l	mg/l
Referenz II 2	SP 346/14	2.5	14.1

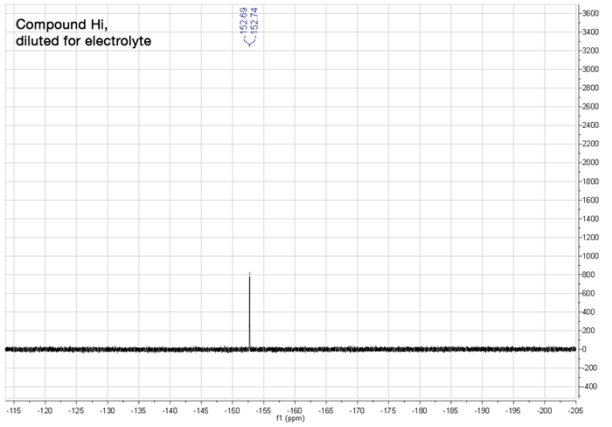
	DIN EN ISO
Kationen:	11885
Bestimmungsgrenze:	0,1 mg/l

^{19}F-NMR Data for the new compounds and for the diluted electrolyte Hi and TG









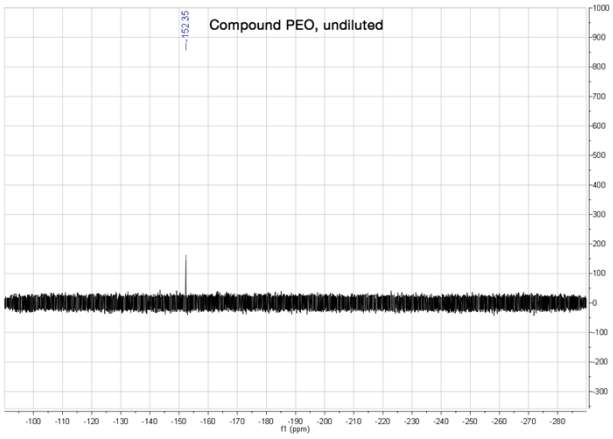
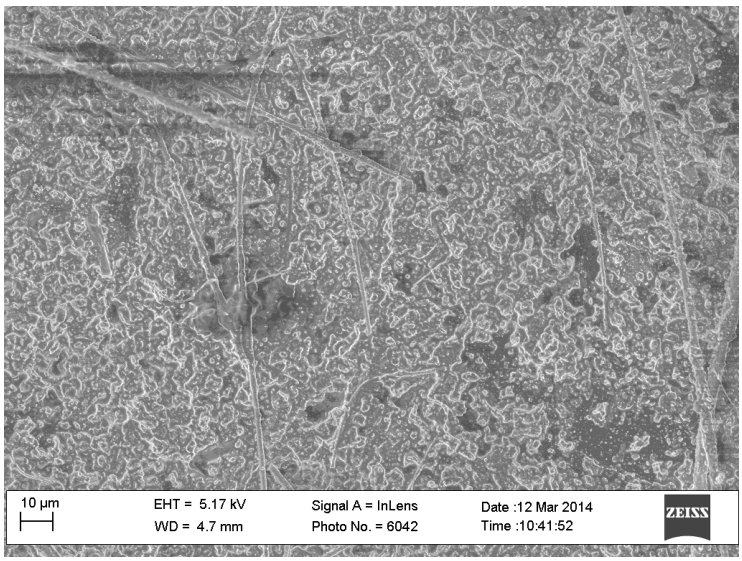


Fig. S9: SEM picture of passivated Mg anode: Heavy curst formation



Different Anode:
Mg foil:
Heavy crust formation of MgF2 onto the anode surface