Supplementary Materials

Ion Conduction and its Activation in Hydrated Solid Polyelectrolyte Complexes

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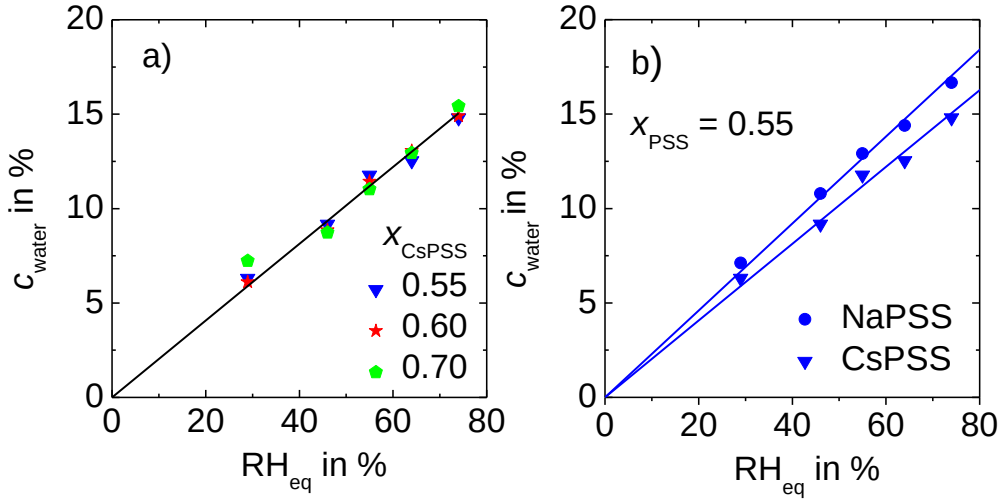
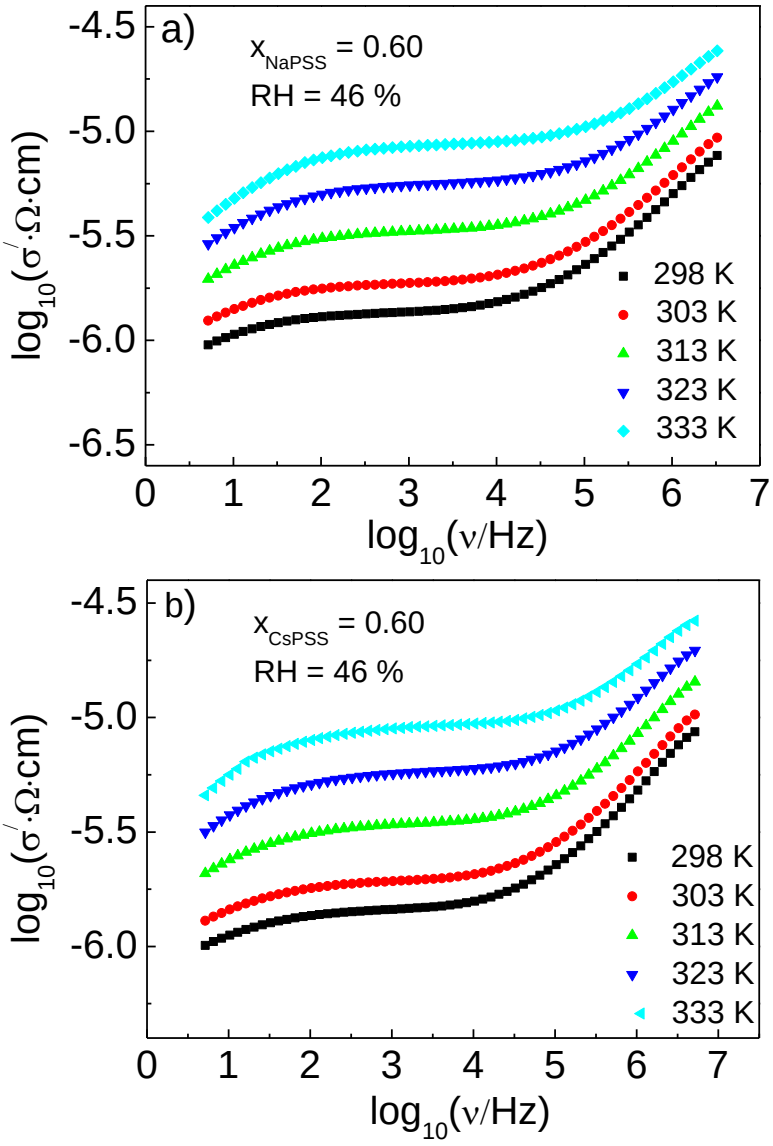
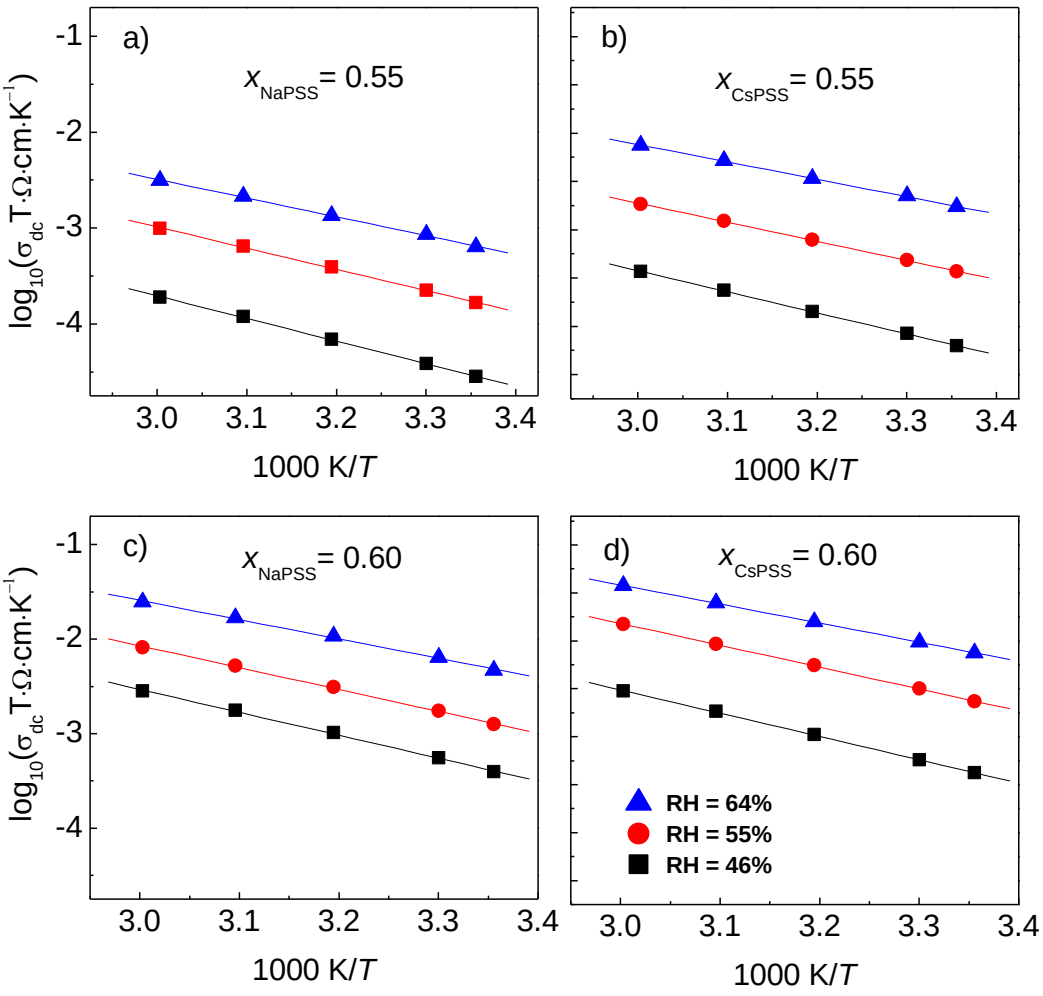


S1: (a) Influence of the relative humidity of the environment on the water content in *x* CsPSS·(1-*x*) PDADMAC at ambient temperature.

(b) Water content of 0.55 MPSS · 0.45 PDADMAC PEC with Na^+ and Cs^+ ions, respectively. All straight lines have been calculated using Equation (1). In the case of PEC with NaPSS the proportionality factor is 0.230 ± 0.005, whereas it is 0.203 ± 0.003 for PEC with CsPSS.

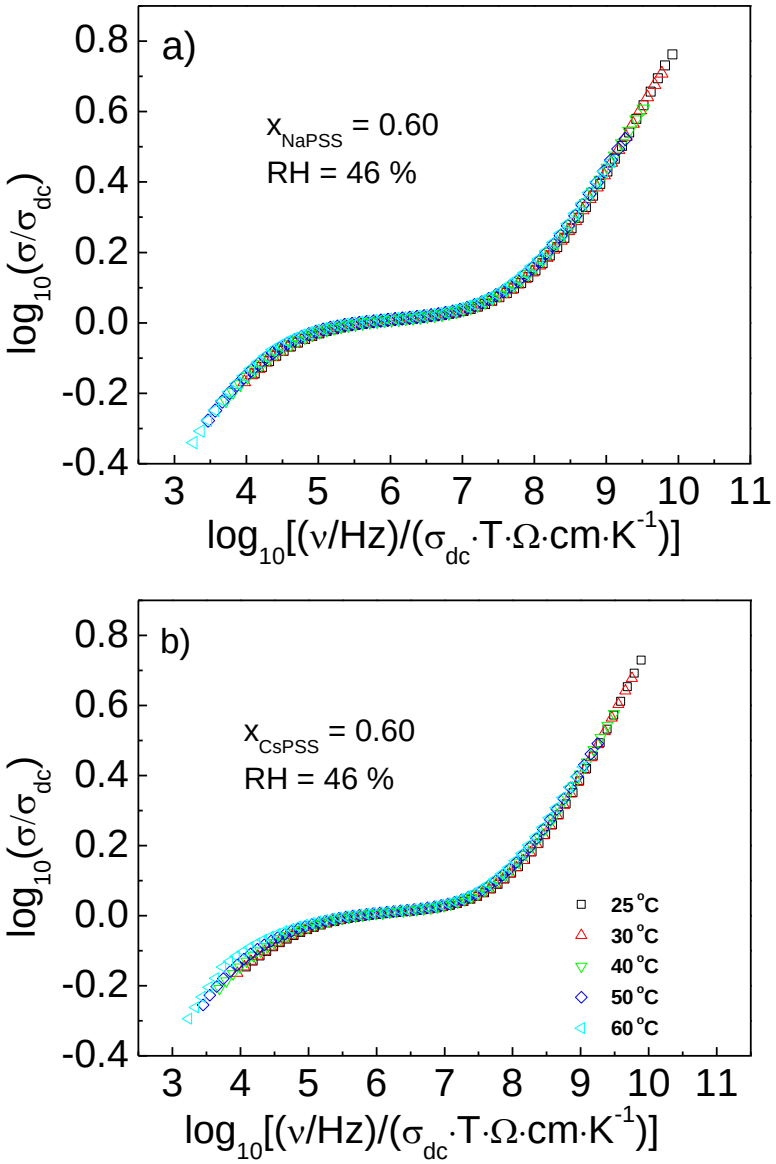


S2: **Temperature-dependent conductivity spectra of the cRH-series: (a) NaPEC and (b) CsPEC, both with MPSS = 0.60. At each temperature the samples were kept in an environment with 46% RH.**



S3: **Arrhenius plots of the PEC with MPSS from the cRH-series.**

The data were taken at three different RH values, viz. 46%, 55% and 64%. Data for different compositions and types of alkali cations are shown: (a) x_{NaPSS} = 0.55, (b) x_{CsPSS} = 0.55, (c) x_{NaPSS} = 0.60, (d) x_{CsPSS}= 0.60.



S4: **Master curves obtained by Summerfield scaling of the different isotherms displayed in Figure S2**

(a) PEC with x_{NaPSS} = 0.60 and (b) PEC with x_{CsPSS} = 0.60. The samples were exposed to RH = 46% at each temperature (cRH-series).