Interactive comment on “Hygroscopic growth and critical supersaturations for mixed aerosol particles of inorganic and organic compounds of atmospheric relevance” by B. Svenningsson et al.

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1) The authors may find the following papers useful for comparison with their measurements of levoglucosan particles:


2) The authors have found that the MIXSEAI measurements have lower growth than the ZSR predictions.

Would the reaction of \(2NaCl + (NH_4)_2SO_4 = Na_2SO_4 + 2HCl\) be important?

In fact, volatilization (i.e., decrease in particle mass) from mixed NaCl-(NH\(_4\))\(_2\)SO\(_4\) particles has been observed by Cohen et al. (1987). Furthermore, chloride depletion in MOUDI samples can be resulted from such artifact reactions (Yao et al. 2001). Did the authors observe any decrease in particle size during the course of experiments?

3) For the ZSR, data of pure ammonium sulfate and sodium chloride were used as inputs in the calculation. As discussed by the authors (page 2851, paragraph 2) and represented by the above reaction equation, ammonium chloride and sodium sulfate can possibly be formed. The use of ammonium sulfate and sodium chloride data as inputs may not fully represent the mixture of inorganic salts. The authors may want to use AIM for estimating the water uptake of the inorganic fraction in MIXSEAI.

References


Interactive comment on Atmos. Chem. Phys. Discuss., 5, 2833, 2005.