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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Effects of SO_2 oxidation on ambient aerosol growth in water and ethanol vapours" *by* T. Petäjä et al.

Anonymous Referee #

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This work reports the ethanol and water uptake properties of recently nucleated particles at a remote station in Finland. While this measurement is only an indirect proxy for composition, it is useful since direct measurements of composition of particles of this size are not possible. The results have been used to link differences in composition to differences in backtrajectories. The authors conclude that the shorter backtrajectory had less sulfate because of a shorter time available for growth, and that this resulted in lower HGF and higher EGF.

Specific Comments: If the difference in behavior is driven by condensation, then there should be a size dependence of the HGF differences. This is mentioned in the text, but the data presentation does not illustrate this point well. This size dependence is difficult

to discern from the data in table 1 or from the presentation of HGF data vs. time. A plot of HGF vs. size for each case would demonstrate this point. Calculations of apparent growth rates and their differences would significantly strengthen the argument.

The indirect nature of these measurements warrant a more careful explanation of their interpretation. In particular, a table summarizing the types of components suggested by the measured HGF and EGF values would provide support for the argument that the higher HGF values are correlated to higher sulfate fractions.

Minor Comments: While the paper is clearly written, there are a number of syntax and typographical errors that should be corrected.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 7725, 2004.