

## ***Interactive comment on “Water uptake is independent of the inferred composition of secondary aerosols derived from multiple biogenic VOCs” by M. R. Alfarra et al.***

**Anonymous Referee #1**

Received and published: 17 June 2013

The study by Alfarra et al. presents measurements of the water uptake properties of chamber-generated biogenic SOA particles. The paper is well written and structured and I recommend its publication in ACP after the following few comments and suggestions for correction and improvement have been addressed.

Specific comments:

Figure 1, Table 1:

I would recommend writing the used substance directly in the individual panels of Fig. 1 and not (only) in the caption as well as mentioning the experiment number in the

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caption. This would make it much easier to compare the figure with Table 1.

Is it Exp. 10 that you show in panel e? It looks like that from the half-life time but it is not the experiment with the lowest initial mixing ratio of  $\beta$ -caryophyllene. Can you explain why there is such a difference in the chemical half-life for Exp. 9 and 10 although the initial precursor mixing ratio is quite the same?

Temporal profile of hygroscopicity ( $\kappa_{\text{HTDMA}}$ , Sect. 3.3):

In Sect. 3.3.1 to 3.3.6 you discuss the temporal trends of  $\kappa_{\text{HTDMA}}$  after start of photooxidation but you do not show these interesting results in a figure. On the other hand, for  $\kappa_{\text{CCN}}$ , you show Fig. 6a, although no temporal trend could be observed. Therefore I would recommend adding a figure plotting  $\kappa_{\text{HTDMA}}$  versus photooxidation time.

Can you explain/speculate why there is no similar temporal evolution for  $\kappa_{\text{CCN}}$  as for  $\kappa_{\text{HTDMA}}$ ? I would have expected similar trends.

Technical corrections:

P. 10707, L. 5: “. . . Frosch et al. (2011). . .”

P. 10715, L. 12: “It has to be noted. . .”

P. 10727, L. 11-12: “. . . to generate particles. . .”

P.10744, table caption: write “kappa” as a Greek letter

P. 10747, Fig. 1: Please label the y-axes for every panel (not only for the middle ones) or alternatively write in the caption that the mixing ratio of the precursor and the primary oxidation product are shown on the left and right axes, respectively. Also, you should additionally label the x-axis of panel e.

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