

***Interactive comment on* “Evolution of particle composition in CLOUD nucleation experiments” by H. Keskinen et al.**

Anonymous Referee #2

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This study reports on chemical and hygroscopicity measurements from CLOUD nucleation experiments involving both inorganic and organic species. A major result is that the organic fraction of the particles increased as particle diameters increased from ~2 nm up to over 50 nm in diameter. The experiments and measurements are of high quality. Numerous instruments were used to carry out the measurements and that data are reported in a concise manner. The manuscript is written well, and the only issue evident in the presentation is that some of the figures are very difficult to see. The topic will be of great interest to ACP. I support publication of this work after the authors go into detail as to why the organic fraction increases with size/growth. Currently the reader is just told that this result was observed and is left to try to piece together on their own as to why this is. The authors can strengthen their paper by providing reasons for this key finding in a convincing way other than simply speculating in a few

C13351

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sentences (i.e. do some calculations and additional work).

Minor comments:

Figure 5c: y-axis label is spelled wrong. Also, many other y-axis labels appear to have an overlap issue where some text covers other text.

General comment about Figures: it is very hard to see panels b-d in Figure 1; text size and marker sizes can be bigger in many of the figures to make it easier for readers to follow what is trying to be shown.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 31071, 2012.

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