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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Density changes of aerosol particles as a result of chemical reaction" *by* Y. Katrib et al.

Anonymous Referee #1

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General comments:

This manuscript introduces an innovative laboratory measurement system for studying heterogeneous surface reactions on coated aerosol particles. As a demonstration of the performance of this system, it is further applied to investigate the density changes of particles covered by oleic acid as a result of their exposure to ozone. The manuscript is well written and sufficiently well structured, in addition to which it clearly fulfills the necessary scientific criteria.

In summary, I strongly recommend the publication of this paper in Atmospheric Chemistry and Physics. Only a couple of very minor comments for the authors to consider for further improvement of the paper is given below.

Specific comments:

First, the authors should explain more explicitly why they have chosen oleic acid as the reaction surface. This may be clear for people investigating heterogenous reactions but not necessarily for a broader scientific community. Especially, the atmospheric relevance of these reactions should be brought up in the text.

Second, the work performed in the paper can be approached from two perspectives: 1) heterogeneous aerosol chemistry in the atmosphere, or 2) particle density and its changes as a result of atmospheric chemistry. The latter perspective has been raised as a general motivation for conducting this study (see text in “Introduction”), while the latter perspective has been discussed briefly in “Conclusions”. I would like to see the authors to build a little bit more concrete bridge between these two perspectives, as they clearly are linked to each other.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 6431, 2004.