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Interactive comment on “Aqueous phase oligomerization of methyl vinyl ketone through photooxidation – Part 1: Aging processes of oligomers” by P. Renard et al.

Anonymous Referee #4

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This manuscript describes SOA formation from the atmospherically abundant precursor methyl vinyl ketone (MVK) using a photoreactor. The authors use an SMPS and AMS to analyze nebulized SOA particles. The use of an AMS in the laboratory to connect to large number of ambient AMS measurements, in addition to placing the findings here in the context of the AMS ‘aging’ paradigm, are interesting and strong components to this work. I recommend that this article for publication provided the comments below are addressed.

The MVK₀/H₂O₂₀ ratio is always 20. Recently there has been evidence in the literature that oxidant-limited conditions influence the amount of SOA formed in aqueous

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phase experiments, both in laboratory (Nguyen et al., ACP, 2014) and modeling (Ervens et al, JGR, 2014) work. Can the authors describe their findings in this context, with specific reference to how conditions here are not oxidant limited?

Some of the language is awkward. For example, AMS signal climax should be changed to something along the lines of “maximum AMS signal intensity”.

There are a few mis-matched singular/plural noun/verb combinations that should be corrected.

Detailed comments: p.15256, “. . . in particular, in regions with high relative humidity (Carlton and Turpin, 2013)”. Please add “and hygroscopic aerosol” after relative humidity.

Is it possible to add uncertainty bars to Figures 3, 5 and 10 (like for Figure 6)?

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 15283, 2014.

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