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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Chemical evolution of secondary organic aerosol from OH-initiated heterogeneous oxidation" *by* I. J. George and J. P. D. Abbatt

Anonymous Referee #1

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General Comments

This manuscript presents results of laboratory measurements of the effects of heterogeneous oxidation by OH radicals on the chemical and physical properties of secondary organic aerosol (SOA) particles. There have been a large number of similar studies carried out previously on surrogates for primary organic aerosol (POA), but this is the first study I've seen on SOA. The experiments, measurements, and data analysis are thorough and well done and the comparisons made with results of studies on POA and ambient aerosols are valuable. The paper is concise and well written. Overall, it is a very good, solid paper and adds a significant amount of useful new results and

insights on organic aerosol aging. I have no significant criticisms and think the paper is of high quality and should be published in ACP.

Specific Comments

1. Section 4: I suggest commenting on whether the differences observed in the effects of OH oxidation on POA and SOA particles might be due to differences in the reactive uptake coefficients, since SOA has fewer H atoms for abstraction, or whether the differences in oxidation state of POA and SOA compounds impact the results via some other mechanism.

Technical Corrections

1. Figure 5. I suggest moving Figure A1 upwards so the baseline can be seen.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 3265, 2010.