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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Dependence of particle nucleation and growth on high molecular weight gas phase products during ozonolysis of α-pinene" *by* J. Zhao et al.

Anonymous Referee #1

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A number of recent studies explore the growth of freshly-nucleated particles by condensation of high molecular weight, gas-phase organic oxidation products. The present careful work adds to this governing body and merits publication in ACP. The previous literature is reviewed and the unique aspects of the present study are outlined. The comments below should be addressed.

1. p. 9325, Line 25: No attempt was made to scavenge OH radicals generated in the ozone-α-piene system. Can an estimate be made of the amount of OH generation?

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2. p. 9326, Line 16: A little more justification would be useful of why experiment E1 is the focus of the paper. On page 9328, line 26, the 10-20 nm particles present in the background are described as “associated detectable Category I products.” What is the source of these particles? Residual products from prior experiments?

3. p. 9333, Line 9: What is the source of residual SO_2?

4. p. 9336, Line 7-: The nitrate dimer ion was used as the reagent ion in the Cluster CIMS. Tests with the acetate dimer ion revealed a “much higher total steady state concentration of all products.” The choice of reagent ion is the single most important aspect of CIMS. One wonders how the conclusions of the study might have been affected if the acetate dimer had used a priori as the reagent ion. Would additional experiments be warranted with acetate?

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 9319, 2013.