

Interactive comment on “LC-MS analysis of aerosol particles from the oxidation of α -pinene by ozone and OH-radicals” by R. Winterhalter et al.

Anonymous Referee #1

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The paper is an important contribution in the field of atmospheric sciences, since the topic of the paper - the chemical composition of particles formed after oxidation of biogenic VOCs - is still not well understood. The focus of the manuscript is the application of a sophisticated analytical technique to aerosol samples from reaction chamber experiments in the EUPHORE facility. Based on the comparison with reference compounds, ionization behavior and the mass spectra the authors try to assign structures to the various products observed. Beside some "classic" experiments (ozonolysis, OH-oxidation) the authors also present the results of initial experiments on ageing of organic aerosols, to my knowledge performed for the first time in a smog chamber. The main conclusions of the manuscript are summarized within three figures showing reaction mechanisms from ozone and OH-reaction as well as secondary reactions. The subject of the paper is certainly appropriate to be published in ACPD. The abstract is

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appropriate and contains the main results. The conclusions drawn are sound, earlier work is adequately recognized. Consequently, I recommend to publish the paper minor revisions.

Chapter 3.1: What about the possibility that losses are also influenced by the volatility of the products (to explain the differences between ozonolysis and photooxidation)?

What about chamber blanks ?

trans- and cis-pinic acid should have different retention times (easier to distinguish than "different detected ions")

I don't think that is necessary to define an own nomenclature. "According to the nomenclature suggested by Larsen " seems to be more appropriate.

I suggest to better explain the correction procedure for aerosol losses.

Chapter 3.2:

I cannot follow the discussion of the increasing yields shown in Fig. 4b. Why is the yield increasing?

Conclusions:

Please, rephrase parts of the conclusion section (e.g. the sentence "Depending on the amount..."). This part is difficult to comprehend.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 1, 2003.

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