

Interactive comment on “Evaluation of the Chemical Composition of Gas and Particle Phase Products of Aromatic Oxidation” by Archit Mehra et al.

Anonymous Referee #2

Received and published: 16 April 2020

Archit Mehra and co-workers conducted the evaluation of the chemical composition of gas and particle phase products of aromatic oxidation. Gas and particle phase composition are compared with the simulation results by Master Chemical Mechanism (MCMv3.3.1). This work highlights a series of missing highly oxidized products in the pathways. The work is therefore valuable in this regard. The article can be published once the authors have addressed the following points.

1. Line 31: “HOMs” Abbreviations should be given their full names when they first appear. Also, for Line 47 “SAPRC”.
2. For the experiment of 1-methylnaphthalene: why the mixing ratio of VOCs is lower

C1

than other experiments? And for each VOCs, the experiments were conducted only once? If not, in all the experiments the mixing ratio of VOCs was controlled uniformly?

3. Line 141: what is the “PFA”?
4. Line 144: you should change the “N2” into “N₂”, and you should check the paper to avoid the similar error.
5. Figure 2: What is the ordinate?
6. Figure 3, Figure 4: The quality of images needs to be improved.
7. Line 273: how to identify the C₄H₆O₂ and C₄H₈O₃? Give the spectrum information.
8. Line 277-278: “with a small reduction in the fraction of C₄ product ions and an increase in C₂ product signal” what is the reason?
9. In this paper, are there any new mechanism that could optimize the MCM? When the missing highly oxidized products were considered in MCM, is there any difference between simulation and experiments?

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-161>, 2020.

C2