

Suggestions for revision from referee 1:

I thank the authors for providing major revisions to the paper. The results and discussion section now contain more synthesized data. It also helps to have the main scientific questions written out and recapped again in the conclusions.

I only have minor editorial suggestions. Note that the line numbers in the Results/Discussion sections refer to the non-tracked document.

We thank the reviewer for the comments. We have addressed all suggestions and made the corresponding revisions in the manuscript. The changes are shown in blue text below.

- L33 (tracked): delete “with” (i.e., : suggesting a shift in)

Revised as suggested

- L43 and L175 (tracked): CHON⁺ ions are detected with AMS as fragments of some molecule, so I suggest saying “strong influence of CHON⁺ ion fragments”. Similarly in L581 (non-tracked) or line 709 (non-tracked)

Revised as suggested

- L197 (tracked): maybe want to write out half and third again for consistency instead of ½ and 1/3

Revised as suggested

- L490 (non-tracked): add “It is worth noting...”

Revised as suggested

- L540-544 (non-tracked): please rephrase or break the sentence in multiple ones

Thank you for the suggestion. We have now clarified and restructured the sentence as follows:

“For the single o-Cresol system, the average \overline{OSc} in negative ionisation mode are comparable between the full and half reactivity experiments. This similarity is mainly contributed by nitro-aromatic molecules, which is dominate products in o-Cresol oxidation and are sensitively detected in negative ionisation mode (Shao et al; 2022a).”

- Fig 3b. Legend doesn't include the pure apinene results and is the light blue, pure o-cresol? Need to edit the legend

Thank you for pointing this out. The legend of Figure 3(b) has been revised accordingly.

- L626-627(non-tracked): rephrase

Thank you for the suggestion. We have rephrased the sentence to improve clarity. It now reads :

“The average \overline{OSc} that estimated from FIGAERO-CIMS measurement in the α -pinene/o-cresol binary system decreases with SOA mass concentration increasing.”

- L647(non-tracked) “might be partly retained”

Revised as suggested

- L664 (non-tracked): the second half of the sentence seems repetitive

Thank you for the suggestion. We have revised the sentence to improve clarity and avoid perceived repetition while retaining the intended meaning. The revised version now reads:

“Within the overlapping SOA mass range, the mixture sits between the single third reactivity α -pinene and single half reactivity o-Cresol experiments, with average \overline{OSc} being higher than the α -pinene and lower than the o-Cresol experiment.”

- L666 (non-tracked): change dominate to dominant

Revised as suggested

- L689 (non-tracked): change shown to showed

Revised as suggested

- L 784 (non-tracked): delete “seems”

Revised as suggested

- L787(non-tracked): changes dominate to dominated

Revised as suggested

- L788 (non-tracked): change “suggested” to “suggesting”

Revised as suggested

- Last sentences in acknowledgements: change “I” to initials. Is this a new requirement for publishing?

Revised as suggested