
We thank the reviewers for the constructive and insightful comments, which significantly improved the quality of this work. Our point-by-point responses can be found below, with reviewer comments in **black**, our responses in **blue**, alongside the relevant revisions to the manuscript in **red**.

Generally, I think the authors answered my comments and suggestions very thoroughly and well, leading to a great improvement on an already very good manuscript. However, some of the thorough responses didn't lead to any additions to the manuscript text. I think they should not stay buried in the referee response file, but added to the manuscript or SI, because other readers may have the same questions, and the authors put a lot of work into them:

1. The answer to question 2 should be added to the method section or the SI.

A: As suggested, we have added the answers to the section 2.2.3 and supplement file (Text S1).

Line 187 “Calibration standards with higher molecular weight were excluded because we only considered ion masses below 200 amu from the field measurement for the study of gas-particle partitioning, see discussions given in Text S1.”

Line 203 “Uncertainties associated with the addition of the low-mass filter have been accounted for in the regression of individual transmission efficiency measurements on corresponding mass to charge ratios. The overall relative standard deviations were less than 15%.”

2. The answer to question 6 should also be added to the manuscript, although it could of course be shortened.

A: As suggested, we have added it in the revised manuscript.

Line 148 “This temperature was chosen to ensure all the unknowns observed in the field can be evaporated effectively while maintaining relatively intact molecular structures, see more details in Section 3.1.”

3. One sentence on the answer to question 17 should be added to the manuscript.

A: As suggested, we have added it in the revised manuscript.

Line 488 “It is worth noting that the uptake of small oxidized compounds on the aerosol aqueous phase does not significantly affect the overall particle phase fraction of these compounds, see detailed calculations in Text S3.”

4. L. 127 in the manuscript: I think this sentence is missing info on the low mass cutoff that you discussed in the response and show in the Supplement. I.e., I suggest you add “...transmits ions more efficiently but leads to a low-mass cutoff (Fig. S4).”

A: Revised as suggested.

Line 127 “The PTR-ToF-MS instrument used here is equipped with a radio frequency (RF)-only quadrupole ion guide that transmits ions more efficiently (PTR-QiTOF, Ionicon Analytik Inc) but results in a low-mass cutoff (Fig. S4).”