

Dear Frank

Thank you for your final editor comments. I have outlined our response below in italics below. I have also added the doi number for the mass spectra data archive.

*Page 4: This sentence has been changed to make it clearer.*

*Previous studies have shown that water can extract the majority of the SOA mass formed in chamber experiments, with a very low background organic signature (Hamilton et al., 2008).*

I would like you to consider adding two comments, with respect to the quantitative interpretation of the observed signals.

(i) It would be useful to have a comment how quantitatively the peak intensities are. In other words do you expect any sensitivity difference for different compound types. This does not affect the actual message of your work, but it would be useful for readers not as familiar with ESI and soft ionization techniques.

*We have added some explanatory text to convey this message on page 5.*

*Ionisation efficiency of individual molecules can vary significantly in ESI and so the largest peak may not represent the most abundant species.*

(ii) Regarding the point you raise for product P1 m/z151. This has a very high vapor pressure and I think the possibility of some decomposition during analysis has to be considered, e.g. some reversible oligomer. I do not disagree that there could be some partitioning but it is surprising that this is the biggest peak in the positive mode, by far. Would you consider adding a sentence in the conclusion that addresses this point, for example, that further work investigation the origin of the high vapor pressure compounds that result in large signals?

*We have added that this signal may result from a reverse oligomerisation process during the analysis.*

*On page 8:*

*In addition, they may be present as a result of decomposition of larger species during the analysis (e.g. reverse oligomerisation).*

*In conclusions:*

*Further investigation is required however to better characterise the role of stabilised Criegee intermediates in the system, to parameterise the specific accretion mechanisms occurring and to determine the origin of the high vapour pressure compounds that correspond to the large positive mode signals.*