

## ***Interactive comment on “Chemical composition of isoprene SOA under acidic and non-acidic conditions: Effect of relative humidity” by Klara Nestorowicz et al.***

**Anonymous Referee #2**

Received and published: 17 May 2018

The manuscript presents interesting new work on elucidation of isoprene SOA formation and the influence of aerosol acidity and relative humidity. The results are generally interesting, but the presentation needs considerable improvement before publication can be considered, in order to provide a less fragmented paper.

The structure of the manuscript could be improved by moving the detailed characterisation (3.3) to an earlier part of results and discussion, and then end with a general discussion of the findings in relation to current literature.

In general the use of English language should be improved. It is not the task of the reviewer to do this, and the authors should carefully read the manuscript to improve

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this.

Please define abbreviations the first time they appear, also in the abstract.

Abstract: I suggest adding some concluding remarks at the end of the abstract.

Introduction: The use of references needs significant improvement. References are missing for several statements (e.g. Page 2 line 4 "Isoprene is the most abundant non-methane hydrocarbon..."). There is no need to introduce an abbreviation in the text for isoprene. There are already plenty of abbreviations in the manuscript, and this one only makes the text more difficult to read. Furthermore it is used inconsistently.

Page 2 Line 10: Please add relevant references. Page 2 line 26: It would be relevant to refer to the following studies: Riva et al., Environ. Sci. Technol., 2016, 50 (11), pp 5580–5588 Zhang et al., Environ. Sci. Technol. Lett., 2018, 5 (3), pp 167–174

Page 2 Line 29-31. This sentence is hard to understand and need references.

Page 3 Line 26: Define SOC. I think "e.g." should maybe be "i.e.". P3. Line 30-31: Other research groups were the first to develop analysis of organosulfates using LC/MS. I suggest to remove "developed in our laboratories" from the sentence.

Section 2.2. Please add information on sampling time and tree species in the area. In several instances "emission" should be replaced by "concentration".

P. 6 Line 7: Define the abbreviation.

P. 7 Line 7- page 8 line 5: This should be moved to the experimental section.

Table 2 needs references to studies where these compounds were first identified.

Figure 1: Why are all these chromatograms shown, when they are not discussed in detailed in the text? I suggest to reduce the figure to one or two chromatograms - if they are discussed.

P11.L10: What do you mean by "attained"?

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Table 3: Add percentage for RH (RH9 -> RH9%).

Data in Table 4 and Figures 4-5 should be presented and discussed in more detail.

Page 17 Line 9: Please write this as a complete sentence.

Figures 7-14. Some of these should be moved to Supplementary. Instead of experiment number it would be more useful to the reader to list whether an experiment was non-acidic or acidic.

Page 21: please add figure number to the mass spectrum.

Conclusion: How much do the quantified compounds make up of the total SOA mass? It is important to keep this in mind, when discussing the effects of acidity and RH.

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-273>, 2018.

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