

***Interactive comment on* “Evaluating the performance of five different chemical ionization techniques for detecting gaseous oxygenated organic species” by Matthieu Riva et al.**

Anonymous Referee #3

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General comments: Many previous works discussed the performance of chemical ionization instruments in detecting oxygenated compounds but few of them systematically compared each other. This manuscript comprehensively evaluates the capability of five widely-deployed chemical ionization techniques in the molecule identification, the range of oxygenated species that can detect and the sensitivity under different conditions. The results can be extremely useful for future studies using these mass spectrometry techniques. I recommend the manuscript to be published in AMT after the following comments are considered.

Individual comments:

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Line 50-51 “While specifically shown for the case of α -pinene ozonolysis, we expect our general findings to be valid also for a wide range of other VOC-oxidant systems.” This can be important, but I do not see much discussions on this.

Line 230-232: “For the PTR instruments and Iodide, a duty cycle correction was applied ... due to the orthogonal extraction of the mass analyzers.” Why only for PTR and Iodide CIMS? Why not for nitrate and amine CIMS. Please explain.

Line 244-250 The sensitivity of VOCUS seems to be significantly lower than the reported numbers in Krechmer et al., 2018.

Figure 5: the y-axes in the B and D panels are covered by left ones.

Section 2.3: If the ion-molecule reactions of amines and OVOCs proceed through different mechanisms, more than just adduction reaction, it is better to remind us about it.

Section 2.4 The discussions in this section is very good. Is it possible to move this part to the end of the manuscript, as part of discussions from the findings of this work?

Line 549-550 Organic nitrates usually fragment in PTR-MS instruments (including VOCUS) by losing the nitrate functional group. The authors should mention this here.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-407, 2018.

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