

Interactive comment on “Application of chemical derivatization techniques combined with chemical ionization mass spectrometry to detect stabilized Criegee intermediates and peroxy radicals in the gas phase” by Alexander Zaytsev et al.

Anonymous Referee #3

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This study presents the development of an online method for measurements of SCIs and RO₂ in laboratory experiments using chemical derivatization and spin trapping techniques combined with H₃O⁺ and NH₄⁺ chemical ionization mass spectrometry. Application of this method is demonstrated using laboratory ozonolysis experiments of multiple hydrocarbons including TME, isoprene, pentene, hexene, alpha-pinene and limonene. The detection limits of spin trap and chemical derivatization agent adducts are estimated to be 1.4E+7 molecule cm⁻³ for SCIs and 1.6E+8 molecule cm⁻³ for RO₂ for 30 s integration time for the instrumentation used in this study. This manuscript is

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well written and within the scope of the journal. I recommend this manuscript to be published in AMT after the following issues be addressed.

Page 6, Line 166-167: Is there any evidence for using HFA with SCIs to prevent secondary reactions?

Page 6, Line 191-194 and Page 8, Line 249-251: Could the author give more detailed explanations or quantitative analysis for these four reasons?

Page 9, Line 277-278: Since there could be various RO₂ in ambient air, how does the author think about the feasibility of using the CID technique to measure ambient air?

Supplement page 8: In FigureS11, at the beginning of the period DMPO+O₃, why did the SCI adduct (m/z 315.228) get a little increasing?

Page 8, Line 234 and Supplement page 2, Line7: The last two letters of the word "CH₃C(=O)CH₂OO" use two different fonts.

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