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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Secondary organic aerosol from chlorine-initiated oxidation of isoprene" *by* Dongyu S. Wang and Lea Hildebrandt Ruiz

Anonymous Referee #3

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The manuscript "Secondary organic aerosol from chlorine-initiated oxidation of isoprene" by Wang and Ruiz reports SOA yields ranging from 8 to 36% derived from chlorine-initiated isoprene oxidation. These yields are obtained by two different types of aerosol smog-chamber experiments, continuous and initial chlorine injection. The presented work is of highest scientific quality and the manuscript is well written. I therefor recommend publication in ACP after concerning the following minor comments:

Introduction: The authors should add a Paragraph to the introduction about natural and anthropogenic halogen sources and sinks in the atmosphere to introduce this topic to the readers; e.g. by: Simpson et al., Tropospheric Halogen Chemistry: Sources,

Cycling, and Impacts, Chem. Reviews, 2015. Roland von Glasow, Wider role for airborne chlorine, nature, 464, 2010. Finlayson-Pitts, Halogens in the Troposphere, Anal. Chem., 82, 770-776, 2010. Buxmann et al., Consumption of reactive halogen species from sea-salt aerosol by secondary organic aerosol: slowing down the bromine explosion, Environ. Chem., 12, 476-488, 2015.

p2 line 30: Please add the characteristics of the UVA light source: actinic flux, quantified UV/VIS spectrum.

P3 line 31 "loss of organic vapors to Teflon surfaces" Teflon films, used for aerosol smog-chambers, are known to store various gaseous species, especially NOx, which is released from the Teflon film by UV radiation and increased temperatures. Has this been observed or taken into account? Please add a related statement to the manuscript.

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