

Interactive comment on “Evaluated kinetic and photochemical data for atmospheric chemistry: Volume VII – Criegee intermediates” by R. Anthony Cox et al.

Anonymous Referee #2

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The manuscript provides a comprehensive assessment of gas-phase Criegee intermediate chemistry and photochemistry. Kinetics measurements are summarized thoroughly for ozonolysis of a broad range of unsaturated VOCs, the reactions of stabilized Criegee intermediates with a selection of trace gases, and unimolecular decomposition reactions. Where appropriate, theoretical work is also referenced to support the assessment of experimental studies. Overall, this is an excellent and thorough summary of our current understanding of Criegee intermediate chemistry in the atmosphere.

I have only very minor suggestions for the authors. First, the discovery of the UV spectrum of formaldehyde oxide that is attributed to Sheps [J. Phys. Chem. Lett. 4, 4201

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(2013)] on page 10 should more properly be attributed to Beames et al. [J. Am. Chem. Soc. 134, 20045 (2012)]. Second, while discussing on page 9 apparent discrepancies between measurements of the UV absorption spectrum the authors comment on the lack of detailed data on the temperature dependence of the cross sections. Foreman et al. [Phys. Chem. Chem. Phys. 17, 32539 (2015)] demonstrated that the spectra were independent of temperature over the range 276-357 K. Third, the range of reactions of stabilized Criegee intermediates covered in the assessment is somewhat smaller than that compiled by Khan et al. [Environ. Sci.: Processes Impacts 20, 437 (2018)]. The authors may want to comment explicitly on why they have focused on the more limited set of reactions.

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