

Interactive comment on “Hydration increases the lifetime of HSO₅ and enhances its ability to act as a nucleation precursor – a computational study” by T. Kurtén et al.

T. Kurtén et al.

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We thank the referee for his/her constructive comments.

As described in Berndt et al. (2006, 2008; references given in the manuscript), great pains have been taken in the experimental setup to minimize the possible impact of organics. Nevertheless, the reviewer is correct that we have, as yet, no absolute or definite proof that HSO₅ is responsible for the observed nucleation rates. The wording of the final manuscript will be changed accordingly.

The title of chapter 4.1 (now called chapter 3.3 based on recommendations by the other referee) will be changed to "Kinetic modelling of flow-tube experiments".

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The total, real lifetime of unhydrated and hydrated HSO_5 can not really be given as we do not know the loss reactions for this species. The steady-state concentration for $\text{HSO}_5(\text{H}_2\text{O})_2$ if self-reaction is assumed to be the main sink is on the order of a few 10^5 cm^{-3} depending on the initial concentrations of the reactant. This will be mentioned in the final manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 2823, 2009.

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