

Review 2<sup>nd</sup> Round Response:

Comment: Additional text and figures should be spell checked and it made sure that the new supplementary material is properly linked to the associated sections in the main text.

*Response: All references to the SI and new figures have been checked, and fixes made where needed. All changes are shown in the tracked change document.*

Comment: the EUROCHAMP and FIXCIT chamber experimental data and databases need to be properly referenced.

*Response: The EUROCHAMP database campaign is cited in the main text. The FIXCIT database is not mentioned in the main text, it is mentioned along with EUROCHAMP in the Supporting Information. Both are now cited in the references section of the supporting information, which has been added to the end of the document. For reference, here is the references section of the Supporting Information document:*

References:

1. Bates, K. H. and Jacob, D. J.: A new model mechanism for atmospheric oxidation of isoprene: global effects on oxidants, nitrogen oxides, organic products, and secondary organic aerosol, *Atmospheric Chemistry and Physics*, 19, 9613–9640, <https://doi.org/10.5194/acp-19-9613-2019>, 2019.
2. Muñoz, A.: Isoprene+NO+hydrogen peroxide + OH - Gas-phase oxidation - product study, Tech. rep., CEAM, url <https://data.eurochamp.org/data-access/chamber-experiments/25320384-8599-4bc9-a35d-993a77cec7c>, 2021a.
3. Muñoz, A.: Isoprene+ozone+carbon monoxide + O<sub>3</sub> - Gas-phase oxidation - product study, Tech. rep., CEAM, url <https://data.eurochamp.org/data-access/chamber-experiments/25320384-8599-4bc9-a35d-993a77cec7c>, 2021b.
4. Muñoz, A. and Gómez-Alvarez, E.: Overview Of The Eurochamp Database Of European Atmosphere Simulation Chambers, in: *Simulation and Assessment of Chemical Processes in a Multiphase Environment*, pp. 61–70, Springer, 2008.
5. Nguyen, T. B., Crouse, J. D., Schwantes, R. H., Teng, A. P., Bates, K. H., Zhang, X., St. Clair, J. M., Brune, W. H., Tyndall, G. S., Keutsch, F. N., Seinfeld, J. H., and Wennberg, P. O.: Overview of the Focused Isoprene eXperiment at the California Institute of Technology (FIXCIT): mechanistic chamber studies on the oxidation of biogenic compounds, *Atmospheric Chemistry and Physics*, 14, 13 531–13 549, <https://doi.org/10.5194/acp-14-13531-2014>, 2014.
6. Vasquez, K. T., Crouse, J. D., Schulze, B. C., Bates, K. H., Teng, A. P., Xu, L., Allen, H. M., and Wennberg, P. O.: Rapid hydrolysis of tertiary isoprene nitrate efficiently removes NO<sub>x</sub> from the atmosphere, *Proceedings of the National Academy of Sciences*, 117, 33 011–33 016, <https://doi.org/10.1073/pnas.2017442117>, 2020.
7. Wennberg, P. O., Bates, K. H., Crouse, J. D., Dodson, L. G., McVay, R. C., Mertens, L. A., Nguyen, T. B., Praske, E., Schwantes, R. H., Smarte, M. D., St Clair, J. M., Teng, A. P., Zhang, X., and Seinfeld, J. H.: Gas-Phase Reactions of Isoprene and Its Major Oxidation Products, *Chemical Reviews*, 118, 3337–3390, <https://doi.org/10.1021/acs.chemrev.7b00439>, PMID: 29522327, 2018.