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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Organic peroxides gas-particle partitioning and rapid heterogeneous decomposition on secondary organic aerosol" *by* H. Li et al.

**H. Li et al.**

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We gratefully thank you for your constructive comments and suggestions to improve the manuscript. Here are our responses to your comments.

(Q=Question, and A=Answer)

Q1. Abstract: will promote -> promote.

A: We have revised it.

Q2. Abstract: "saves OH" is an ambiguous statement. Please rephrase.

A: Thank you for your suggestion. “Preserves” instead of “saves” is used in the revised manuscript.

Q3. Experimental section (p. 28138) and elsewhere: the authors should make it very clear (and probably add a disclaimer of some sort in the abstract) that they realize that the concentrations they use in their experiments are very high, and therefore, yields of peroxides may not represent actual yields of peroxides in oxidation of alpha-pinene in nature.

A: Thank you for your suggestion. We have added this in the results and discussion section. The detailed analysis of the effects of high concentration on these results and conclusions has been added in the supplement.

Q4. Future studies: It would be really great if the authors analyzed a field sample from an alpha-pinene-dominated region, such as boreal forests, and determined the same peroxides they observe in their lab experiments in field samples by the same methods they use. No action is needed in response to this comment.

A: Thank you for your suggestion. We would like to do this work if possible.

Q5. p28136: I presume “GABRIEL” stands for something? (Guyanas Atmosphere-Biosphere exchange and Radicals Intensive Experiment with a Learjet)

A: Yes, we have added the full name of this campaign in the revised manuscript.

Q6. p28148: please verify the $1.5\times10^{-30}$ $cm^3$ $molecule^{-1}$ $s^{-1}$ value; it seems to be too low to me.

A: We checked again, and confirmed that $1.5\times10^{-30}$ $cm^3$ $molecule^{-1}$ $s^{-1}$ was given by Aplincourt and Anglada (2003).

References

Aplincourt, P., and Anglada, J.: Theoretical studies on isoprene ozonolysis under tropospheric conditions. 1. Reaction of substituted carbonyl oxides with water, J. Phys.



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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 28133, 2015.



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