

Interactive comment on “A new source of methyl glyoxal in the aqueous phase” by M. Rodigast et al.

Anonymous Referee #1

Received and published: 14 January 2016

The authors present a detailed study of the aqueous-phase oxidation of methyl ethyl ketone (MEK). Their most significant finding is that this species may be a precursor for methylglyoxal in the aqueous phase. The experiments were carefully performed and a detailed modeling analysis was used to determine the reaction mechanism and rate constants. The paper is suitable for publication in ACP after a few minor points are addressed.

My main concern about this paper is that I would like to see a discussion of the relative importance of this source of methylglyoxal as compared to uptake from the gas phase. The Henry's Law constant of MEK is very low, 2-3 orders of magnitude lower than that of methylglyoxal itself. Considering mass transfer limitations, how significant of a source of methylglyoxal, and by extension, aqueous SOA, is this pathway?

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Minor comments:

- Methylglyoxal is conventionally one word in English, please change throughout.
- Was there any gas phase in the reactor? Was it in equilibrium with the aqueous phase?
- p. 31898 line 7-8: please elaborate on how the relative photolysis rate constants 'confirm the experimental results'

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 31891, 2015.

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