

## ***Interactive comment on “The kinetics and mechanism of an aqueous phase isoprene reaction with hydroxy radical” by D. Huang et al.***

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The authors investigated the reaction between OH radicals and isoprene in aqueous solution. The work presents some useful technical aspects but is missing the following important things: 1) Adopted aqueous solution is not representative of real cloud water composition and abstract should be changed (see page 8516 lines 4 and 5). The authors analyzed aqueous oxidation of isoprene toward OH radical and not in cloud water. Considering the chemical composition of used solutions and the missed experimental OH radical formation rate determination this study seems to be far from really understand the fate of isoprene in clouds. 2) Lamp emission wavelengths are missed in the Experimental section (2.2 apparatus and procedure). Using a Xenon arc lamp and a quartz reactor wavelength < 240 nm are not stopped and are certainly responsible

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for the isoprene direct degradation. 3) In order to better understand the “real” fate of isoprene in clouds a comparison with the OH radical formation rates ( $M s^{-1}$ ) is needed. 4) Why the averaged concentration of OH radical was estimated on the basis of model simulation and not directly determined using an appropriate scavenger (section 3.2.1)? Certainly as demonstrated for isoprene degradation, model simulation lacks some reaction and probably a comparison with experimental OH radical quantification should be more appreciated. 5) How the authors explain the fact that after 45 min a plateau is reached in figure 5? Hydrogen peroxide is still present in aqueous solution?

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