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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: Effect of varying the $\lambda = 185$ and 254 nm photon flux ratio on radical generation in oxidation flow reactors" *by* Jake P. Rowe et al.

Anonymous Referee #1

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This study focuses on the investigation of the behavior of different mercury lamps and specifically on how much OH radical they can generate either via photolysis of ozone or photolysis of oxygen and water based on the emitted wavelength (254 and/or 185 nm). The different lamps are compared for different concentration of O3, water, external OH reactivity and current applied. The comparison leads to the development of an equation to estimate the amount of OH radical produced as function of water, O3 and external OH reactivity applicable for the majority of lamps currently in use.

The paper is well written and well-structured and fits the purpose of a Technical Note within ACP. I recommend its publication.

Minor comments.

Page 2, line 35. I find this sentence a bit confusing. Specifically the statement that compressed air or O2 is not required for external O3 generation making the lamps with 185 nm easier to use in field studies. How are normally lamps with 185 nm used in the field? Just with ambient air? How a stable water vapor concentration is achieved?

Page 2, line 49. Please add the specification of the sensor used to measure the relative humidity.

Page 3, section 2.1. Here it is not clear how the choice of these lamps was made. I assume it was done to cover the largest possible range of I185:I254 ratios? Or are these lamps the most commonly used? I would suggest to extend a little bit the section to more clearly explain these lamps were used.

Page 7, code and availability. There it is stated that the KinSim mechanism is available upon request. Though, in the supplement of the paper (page 4) a table is listed with caption indicating that it contains the KinSim mechanism. So, which one was used within this study? I would recommend including the one developed within the study in the supplement so that anyone could make use of it.

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