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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Consecutive reactions of aromatic–OH adducts with NO, NO_2 and O_2: benzene, toluene, m- and p-xylene, hexamethylbenzene, phenol, m-cresoland aniline" *by* R. Koch et al.

Anonymous Referee #5

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This paper presents kinetic data for reactions of a series of OH-aromatic adducts with O2, NO and NO2, being a combination of new data, re-evaluated old data and extended presentation of old data. Despite the reliance on data already available, this paper does provide a useful analysis and overview of the dataset and is worthy of publication. I have some minor comments.

The opening paragraph of the introduction justifies the study in terms of the atmospheric relevance of aromatic hydrocarbons, and the confirmation that the major atmospheric fate of the OH-aromatic adducts is reaction with O2. This is a useful, if

not unexpected, conclusion. As a result, the details of the subsequent chemistry (i.e., following the addition of O2) become highly relevant to the atmosphere, and to quantifying the ozone creation potentials referred to. Some future studies to interpret the extent of OH recycling in the presence of O2 and NO would therefore be instructive, and this could be a recommendation of this work.

The analysis of the datasets defines AOH as the OH-aromatic adduct in each system. Given that one of the main conclusions of the work is that the ispo-adduct exists, and that it possesses a higher stability, all the systems other than benzene and hexamethylbenzene will presumably have more than one isomeric OH-aromatic adduct with differing stabilities. Why is it apparently not necessary to account for this in the analysis?

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 7623, 2006.