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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Hydrogen isotope fractionation in the photolysis of formaldehyde" *by* T. S. Rhee et al.

T. S. Rhee et al.

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We thank the reviewer for the comments on our paper. The reviewer questioned the influence of heterogeneous reactions that might happen on a reactor surface. As mentioned in Section 2 in the lines of 5 - 7 of of p.12719, we did not detect a change in partial pressure inside a 3-L glass flask for 2 days. We believe that this indicates neither adsorption on the glass surface nor polymerization of formaldehyde. Considering a 50% CH2O breakdown in less than 20 hours in the reactor, the blank test for two days is enough to check the potential surface reactions of CH2O. In addition, note that all the photolysis experiments were conducted after further dilution of the stock air to parts per million ranges (see Table 1). Under such a low partial pressure of CH2O, it is not likely that physical adsorption and polymerization could occur in the reactor. No polymerization was observed at ˜10 mbar of CH2O in the literature (e.g.,Horowitz and

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Calvert, 1978)

Horowitz, A., and Calvert, J.C.: The quantum efficiency of the primary processes in formaldehyde photolysis at 3130 A and 25C, Int. J. Chem. Kinet., 10, 713-732, 1978.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 12715, 2007.

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