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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measurements of OH and HO_2 yields from the gas phase ozonolysis of isoprene" *by* T. L. Malkin et al.

T. L. Malkin et al.

chtlm@leeds.ac.uk

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Referee 1: Substantive comment concerns the discussion of HO2 formation on page 17593. It would, I think, be extremely useful to expand this section, showing the key reactions involved, and their branching ratios. This would avoid potential confusion about the reactions themselves (CH2OO cannot decompose to give both OH and HO2 directly).

Author: Figure 1 (or 12 in revised paper) has been produce and the text has been improved consequently.

Referee 1: I am somewhat confused by the statement that the OH/HO2 yield from CH2OO is 0.255, as the OH yield from ethane is about 0.12. I don't understand why

it is assumed that 50 % of the HO2 comes from CH2OO and the other 50 % from the other two CIs. I also don't understand why MVKOOA and MACROOA have identical HO2 yields.

Author: Apologies, poorly explained. Figure 1 (or 12 in revised paper)is a full breakdown of the ozonolysis of isoprene and its branching ratios as recommended by the MCM (http://mcm.leeds.ac.uk/MCM/). The ratios of MVKOOA and MACROOA do not have identical HO2 yields. The contribution is 0.079 $\pm$ 0.007 for MACROOA and 0.053 $\pm$ 0.006 for MVKOOA, total contribution from these intermediates of 0.132 $\pm$ 0.010. HO2 is formed 50% by the CH2OOE Criegee intermediate and 50% by the MVKOOA and MACROOA Criegee intermediates (Aschmann and Atkinson, 1994; Grosjean et al., 1993, Jenkin et al., 1997), hence the CH2OOE contributes 0.125 $\pm$ 0.010 with an overall yield YHO2 = 0.125 + 0.132 = 0.257 $\pm$ 0.025.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 17579, 2009.

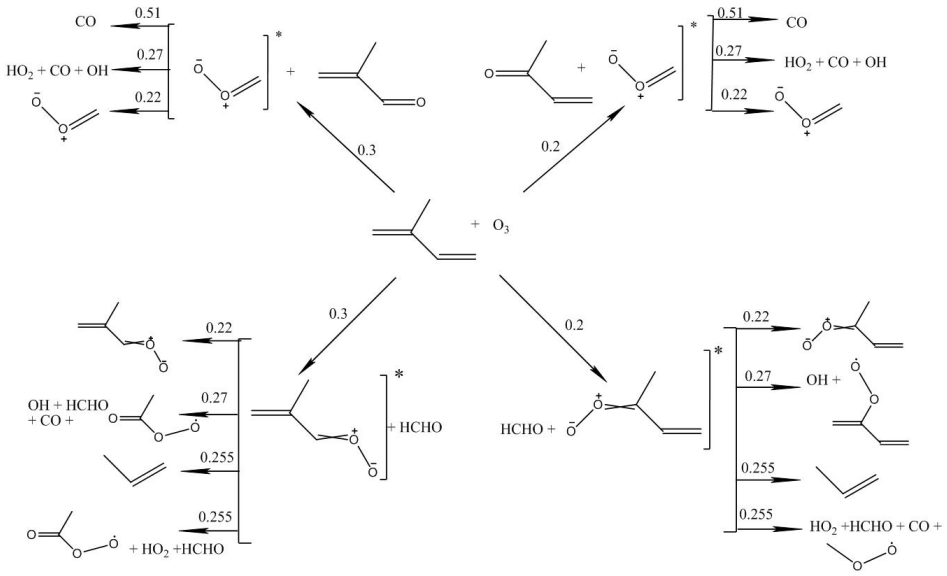

Fig. 1. Full isoprene ozonolysis chemistry with MCM based yields