

## ***Interactive comment on “Role of aldehyde chemistry and NO<sub>x</sub> concentrations in secondary organic aerosol formation” by A. W. H. Chan et al.***

**Anonymous Referee #1**

Received and published: 28 May 2010

This manuscript reports gas-phase reaction and SOA formation from methacrolein that is one of the major products of the atmospheric oxidation of isoprene. Main focus is on the influence of NO<sub>2</sub>/NO ratios on product formation and SOA yields. The experiments with methacrolein are complemented by experiments with isoprene itself as well as with aldehydes with similar structural features to methacrolein. Additionally, two unsaturated alcohols were used as organic SOA precursors in these chamber studies. The study of the behavior of the additional compounds gives the authors the opportunity to support the proposed SOA formation mechanism starting from methacrolein. The experimental description is clearly arranged and the methods for calculating the NO<sub>2</sub>/NO ratios are well documented. The results are compared in detail with those of previous studies. The atmospheric implication of the very important results is discussed. The manuscript is original and meets the scope of ACP. The manuscript is concise, well written and

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suitable for publication in the current form.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 10219, 2010.