

Interactive comment on “Impact of organic nitrates on urban ozone production” by D. K. Farmer et al.

Anonymous Referee #2

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General comments

This paper presents the importance of alkyl nitrate (AN) formation, a minor branch in the reaction of organic peroxy radicals with NO, in the ozone production. A model as well as a field study of Mexico City was used to demonstrate the effects of AN formation that can counteract the benefits of VOC controls on ozone production, indicating additional awareness of AN formation importance in air quality control and modeling. In general, the paper is well written and reports important results. I recommend it be published in ACP after revision and ask the authors to consider the following special comments in their revision.

Special Comments

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Interactive Discussion

Discussion Paper

1) In Section 2.2 Instrumentation (P.23429, 1st paragraph), particle-phase organic nitrates were also detected together with the gas-phase nitrates. Were there any tests conducted in the field to estimate how much the particulate organic nitrates account for the detected total nitrate (e.g., add a filter in front of the sampling inlet to remove the particles)? If the fraction of the particulate organic nitrates is substantial, the estimated branching ratio would be larger than 7% in Mexico City, assuming only gas phase chemistry are involved in Section 2.3.

2) In Fig. 3, what is the uncertainty of the estimated branching ratio (7%) due to the scatter of the data points? Because the deposition and transport are ignored in Equation (4), this uncertainty could be substantially large.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 23423, 2010.

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