

Interactive comment on “Global mechanistic model of SOA formation: effects of different chemical mechanisms” by G. Lin et al.

Anonymous Referee #1

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Two initial questions before I can complete my review:

1) I am confused by the model formulation for SOA. The paper initially describes SOA partitioning through equation (1), which is essentially Pankow's relation for the equilibrium between condensing and evaporating organic vapors. On page 26356, we read though:

"Traditionally, SOA is considered to be formed through gas-particle partitioning of semi-volatile organic compounds. We call these SOA as ne oSOA hereafter in this paper (see Table 1). "Ne" stands for "non-evaporative", and "oSOA" means "other oxidative SOA" to differentiate from SOA formed from the uptake of glyoxal" etc.

The problem here is that it seems as though the "traditional" SOA (e.g. from terpenes)

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is no longer partitioning, but fixed in the aerosol phase. Both interpretations cannot be correct - either the semi-volatile vapors are both evaporating and condensing according to eqn (1), or condensation is the only process allowed, in which case the K values are not appropriate.

2) Page 26363, Line 15. An equation is missing here.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 26347, 2011.

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