

Interactive
Comment

Interactive comment on “Formation of 3-methyl-1,2,3-butanetricarboxylic acid via gas phase oxidation of pinonic acid – a mass spectrometric study of SOA aging” by L. Müller et al.

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You have calculated an experimental yields of MBTCA of 0.67% and I wonder if in fact this yield is not much more higher. You calculated your yield by dividing the average concentration of MBTCA ($0.27 \mu\text{g}/\text{m}^3$) by the average concentration of pinonic acid ($40 \mu\text{g}/\text{m}^3$). However, the yield should be calculated as the concentration of MBTCA formed divided by the amount of pinonic acid which has been oxidised (and not the amount present in the chamber). As there is a high rate of gas phase wall loss (and therefore a high rate of pinonic acid on the wall) and a small time of production of OH, it

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would not surprised me for example that only a small of the pinonic acid injected would react with OH (maybe a few $\mu\text{g}/\text{m}^3$).

It would be very useful to have the this amount. Otherwise, I think that the experimental yields cannot be used.

In part 2.2, you said "Resulting OH concentrations can be calculated...". Did you calculate OH concentrations. This data could be really useful and you could estimate the amount of pinonic acid which has reacted with OH (R).

$R = k * \text{OH} * \text{pinonic acid} * \text{time of oxidation}$

pinonic acid = $40 \mu\text{g}/\text{m}^3$

time of oxidation: around 2 hour

k: kinetic of oxidation of the pinonic acid

The calculation would be more precise if you know the concentration of OH and pinonic acid as a fonction of the time:

$dR(t) = k * \text{OH}(t) * \text{pinonic acid}(t) * dt$

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