Supplement of

Exploring biogenic secondary organic aerosols using a PTRMS- CHARON in laboratory experiments: characterization and fingerprint analysis

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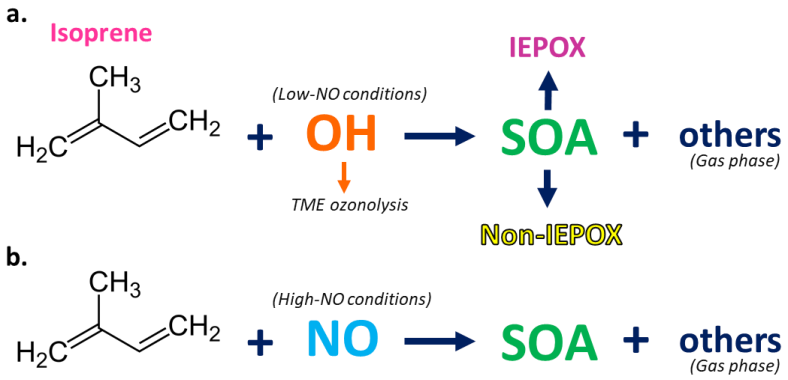

Figure S 1: ISOP-SOA reaction pathway scheme under (a) low-NO conditions (ISOP-Non-IEPOX-SOA and ISOP-IEPOX-SOA) and (b) high-NO conditions (ISOP-NO-SOA).

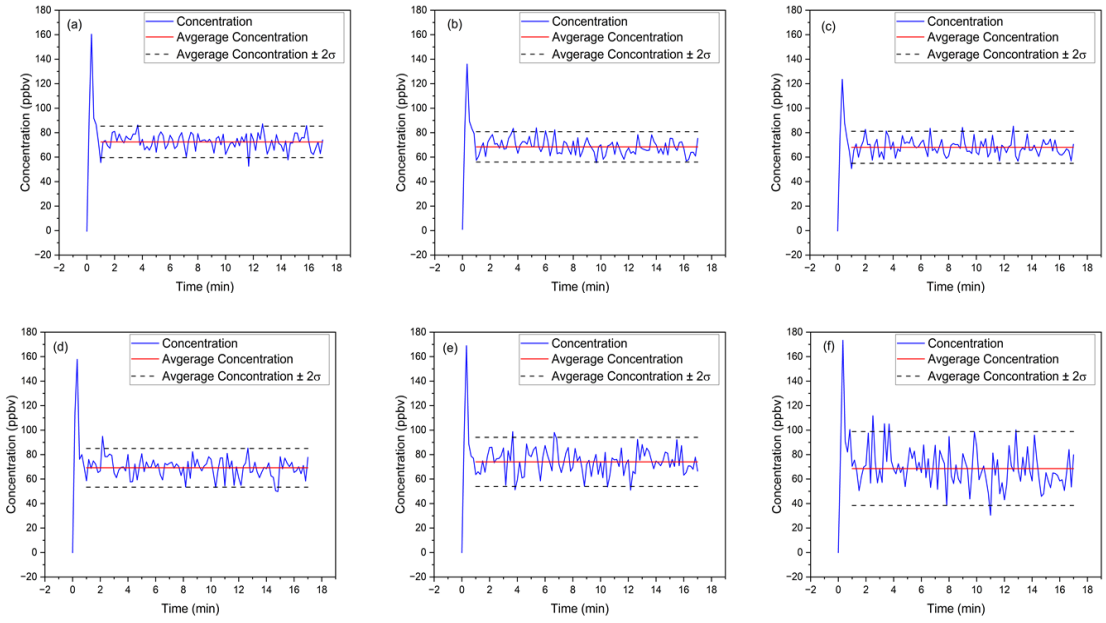

Figure S 2: Mixing time of the organic compounds (a) acetonitrile, (b) acetone, (c) MEK, (d) toluene, (e) m-xylene, and (f) α-pinene in the DouAir Teflon Chamber.

Dilution and wall loss corrections

The DouaiAir chamber requires constant zero air flow injection to compensate for the air sampled by the instruments and to maintain an overpressure in the system. The constant flow also allows the chamber to clean itself during the night. The flow rate can be varied between 15-40 L min^{-1}. Correcting for dilution allows assessing the concentration of the precursors and products that would be observed without the addition of zero air. The dilution concentration is based on Lamkaddam et al. (2017):

$$C_{corrected}(t_{i+1}) = C_{corrected}(t_i) + \Delta C_{measured} + \frac{Q_p \times \Delta t}{V} C_{measured}(t_i) e^{-\frac{Qp}{V} \times \Delta t}$$

where,

C is the corrected and measured concentration, $\Delta C_{measured}$ represents the difference between the measured concentration at two consecutive points, Qp is the sample flow rate, V is the chamber volume, and Δt is the time between two data points.

First order wall loss rates were determined for gases, O_3, and particles and are reported in table Table S2.

Table S 2: Wall loss rates and lifetimes of particles and gases in the DouAir Teflon chamber.

Gases/Particles	First order k_{wall} (s^{-1})	t (h)
Ozone (O_3)	4.7×10^{-6}	60
Particles	6.7×10^{-6}	41
Acetone	2.8×10^{-6}	101
Toluene, MEK, acetonitrile	$(3.0 - 3.4) \times 10^{-6}$	86 - 91
m-xylene	3.8×10^{-6}	73
a-pinene	7.3×10^{-6}	37

References

Lamkaddam, H., Gratien, A., Pangui, E., Cazaunau, M., Picquet-Varrault, B., and Doussin, J.-F.: High-NOx Photooxidation of n-Dodecane: Temperature Dependence of SOA Formation, Environ. Sci. Technol., 51, 192–201, https://doi.org/10.1021/acs.est.6b03821, 2017.