Supplementary Material of

Liquid-liquid phase separation in particles containing secondary organic material free of inorganic salts

M. Song et al.

Correspondence to: A. K. Bertram (bertram@chem.ubc.ca)

Section S1. The average O:C values of the SOM used in the LLPS studies (excepted for toluene-derived SOM) were based on average O:C values reported in the literature (Table 3). Since the average O:C can depend on oxidant time and oxidation conditions, we chose O:C values from the literature that were determined using similar experimental conditions to those used in the LLPS studies. To illustrate the similarity in experimental conditions, in Table S1 we list the experimental conditions used to generate the SOM in the LLPS studies and the experimental conditions used to generate the SOM in the O:C studies referenced in Table 3.

Table S1. Experimental conditions used to generate SOM for the liquid-liquid phase separation (LLPS) studies as well as the experimental conditions used to generate the SOM in the O:C studies referenced in Table 3. '*NA*' indicates not available.

SOM	VOC conc. (ppm)	O_3 conc. (ppm)	SOM generation	Residence time (sec.)	O:C	Type of study
Ozonolysis of β-caryophyllene	0.03 - 0.7	12 - 30	Flow tube reactor	38	*NA*	LLPS (This study)
	0.1	15	Oxidation flow reactor	110	0.36 – 0.38	O:C analysis (Li et al., 2015)
Ozonolysis of α-pinene	0.2 – 5.0	10 - 20	Flow tube reactor	38	*NA*	LLPS (Renbaum-Wolff et al., 2016)
	0.1	15	Oxidation flow reactor	110	0.42 - 0.44	O:C analysis (Li et al., 2015)
Ozonolysis of limonene	0.07 – 2.0	13 - 30	Flow tube reactor	38	*NA*	LLPS (This study)

	41	1	Flow tube reactor	110	0.34 - 0.40	O:C analysis (Heaton et al., 2007)
Photo-oxidation of isoprene	0.7 – 7.0	10 - 30	Oxidation flow reactor	84 -114	*NA*	LLPS (Rastak et al., 2016)
	0.7	15	Oxidation flow reactor	110	0.87 – 0.89	O:C analysis (Li et al., 2015)
	0.33	15 - 30	Oxidation flow reactor	100	0.52 – 0.85	O:C analysis (Lamb et al., 2015)

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