Supplementary Material of

Liquid-liquid phase separation in secondary organic aerosol particles produced from α-pinene ozonolysis and α-pinene photo-oxidation with/without ammonia

Suhan Ham[1], Zaeem Bin Babar[2], Jaebong Lee[3], Hojin Lim[2], Mijung Song[1*]

[1] {Department of Earth and Environmental Sciences, Chonbuk National University, Jeonju, Jeollabuk-do, Republic of Korea}

[2] {Department of Environmental Engineering, Kyungpook National University, Daegu, Republic of Korea}

[3] {Korea Atomic Energy Research Institute, Daejeon, Republic of Korea}

Table S1. The O:C ratio and experimental conditions of SOA particles studied in this study and previous studies. The literature data closest to the conditions used in this LLPS study were selected. The O:C ratios were determined using aerosol mass spectrometers. '*NA*' indicates no data available.

SOA	VOC conc. (ppb)	O_3 conc. (ppb)	SOA generation	Residence time (hr)	O:C	Reference
α-pinene O_3	1000	$1.0 \cdot 10^4$	Flow tube reactor	*NA*	*NA*	This study
	100	$1.5 \cdot 10^4$	Oxidation flow reactor	0.01 – 1.70	0.42 – 0.44	Li et al. (2015)
	200 – 5000	$1.0 \cdot 10^4$ – $2.0 \cdot 10^4$	Flow tube reactor	0.01	*NA*	Renbaum-Wolff et al. (2016)
α-pinene OH	1000	$2.0 \cdot 10^3$ – $6.0 \cdot 10^3$	Flow tube reactor	*NA*	*NA*	This study
	41 – 462	$1.5 \cdot 10^4$ – $3.0 \cdot 10^4$	Flow reactor	0.03	0.40 – 0.90	Lambe et al. (2015)

β-caryophyllene O_3	30 – 700	$1.2 \cdot 10^4$ – $3.0 \cdot 10^4$	Flow tube reactor	0.01	0.36 – 0.38	Song et al. (2017)
Limonene O_3	70 – 2000	$1.3 \cdot 10^4$ – $3.0 \cdot 10^4$	Flow tube reactor	0.01	0.34 – 0.40	Song et al. (2017)
Toluene OH	200 – 1000	$3.0 \cdot 10^4$	Oxidation flow reactor	0.03	1.14 – 1.30	Song et al. (2017)
Isoprene OH	700 – 7000	$1.0 \cdot 10^4$ – $3.0 \cdot 10^4$	Oxidation flow reactor	0.03	0.52 – 0.89	Rastak et al. (2017)

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