

2.106 Studies on liquid-liquid phase separation in organic particles produced from the ozonolysis of α -pinene and β -caryophyllene products.

Early Career Scientist

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Abstract:

Recently, some studies showed that liquid-liquid phase separation (LLPS) occurs in secondary organic aerosols (SOA) without inorganic salts at high relative humidity of ~95% (Renbaum-Wolff et al., 2016; Rastak et al., 2016; Song et al., 2017). More recently, Song et al. (2018) suggests using organic particles containing one and two organic species that the average O:C of the organic particles is important for occurrence of LLPS. In order to get additional insight into LLPS in organic aerosol particles, we investigated LLPS in particles containing pinonic acid, pinic acid, β -caryophyllonic acid, β -nocaryophyllonic acid, β -nocaryophyllene aldehyde, β -caryophyllinic acid and β -nocaryophyllinic acid which are ozonolysis products from α -pinene and β -caryophyllene. Moreover, we conducted LLPS in particles containing these products mixed with highly oxidized organic compounds such as polyethylene glycol 400, diethyl L-tartrate and pyruvic acid. The results and implications will be presented.