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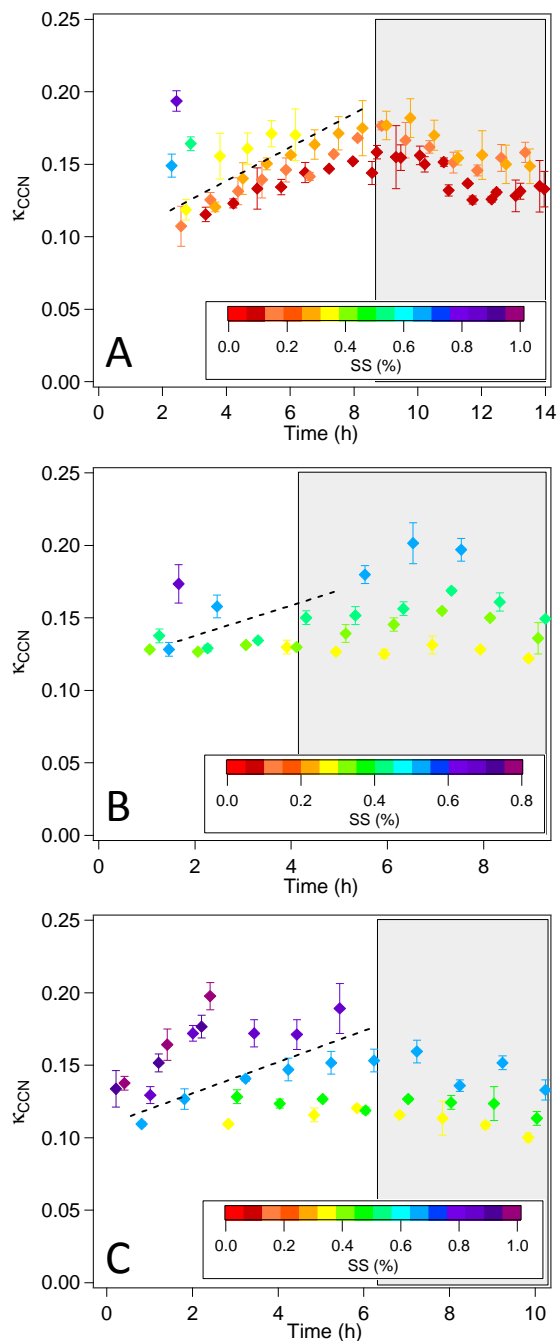
Supplement of

Cloud condensation nuclei activity, droplet growth kinetics, and hygroscopicity of biogenic and anthropogenic secondary organic aerosol (SOA)

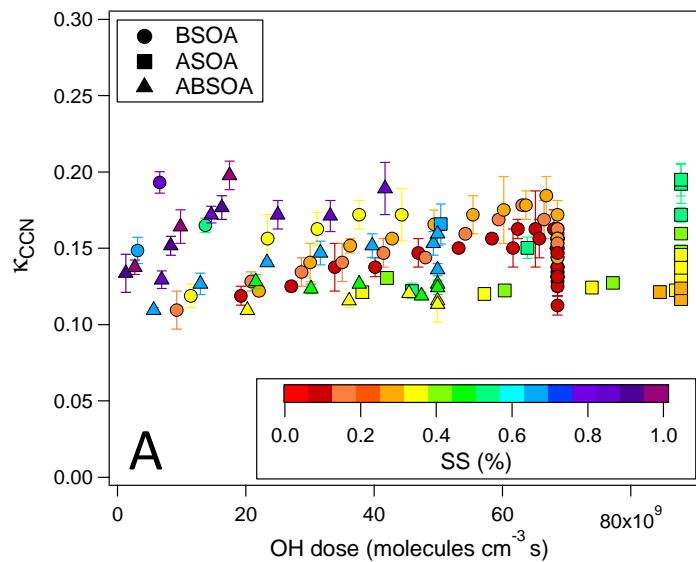
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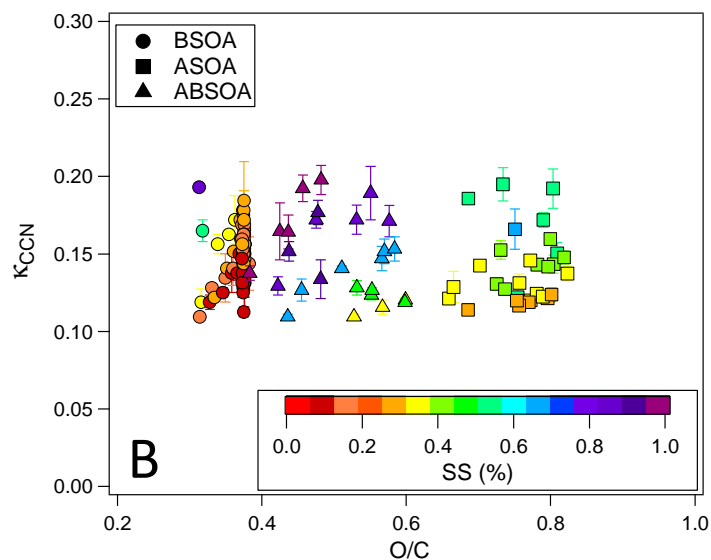
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 2 Figure S1. CCN activity of BSOA (A), ASOA (B) and ABSOA (C) at various supersaturations
 3 (SS). BSOA was formed by ozonolysis of monoterpene (mixture of α -pinene and limonene with
 4 a molar ratio of 1:1) followed by photooxidation. ASOA was formed by photooxidation of
 5 toluene. ABSOA was formed by the photooxidation of a mixture of toluene and monoterpenes
 6 (α -pinene:limonene =1:1). The shaded areas indicate dark periods.

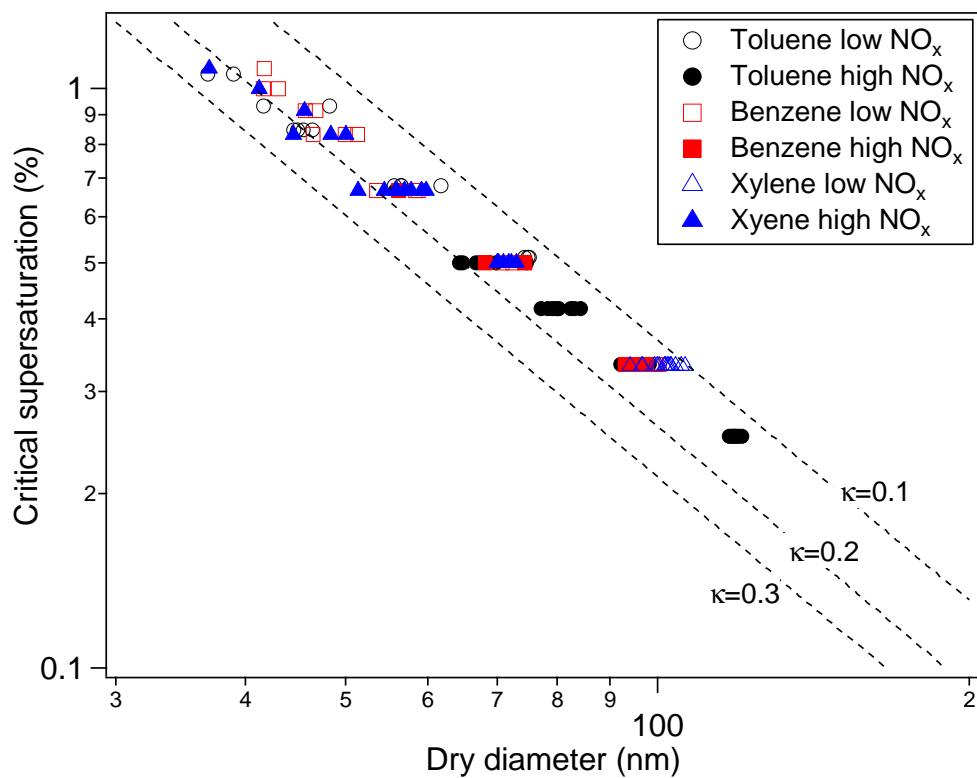


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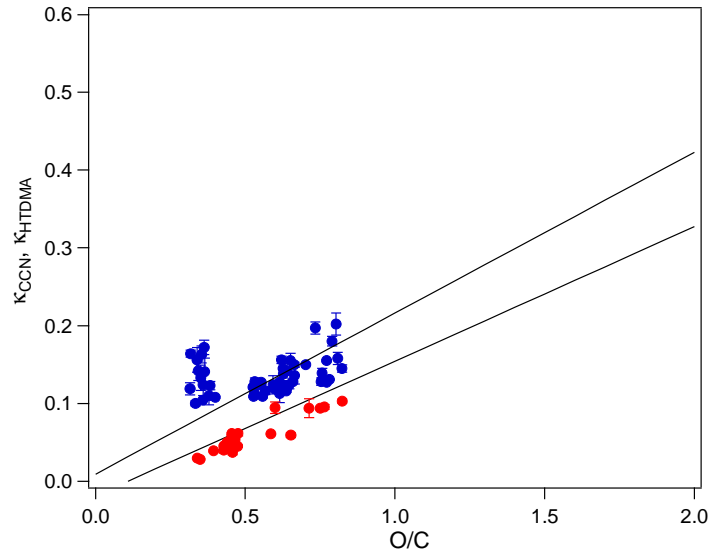
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3 Figure S2. CCN activity of BSOA, ASOA and ABSOA represented by κ_{CCN} at various
 4 supersaturations (SS) as a function of OH dose (A) and O/C of aerosol (B). The points lining
 5 vertically for each aerosol type in panel A are from the dark period.



1
 2 Figure S3. Critical supersaturation as a function of dry particle diameter of ASOA formed from
 3 toluene, benzene, and xylene photooxidation in the low NO_x (<1 ppb) and high NO_x condition
 4 (10 ppb NO added). ASOA from different precursors show similar CCN activity. ASOA
 5 produced at low NO_x and high NO_x show similar CCN activity.
 6

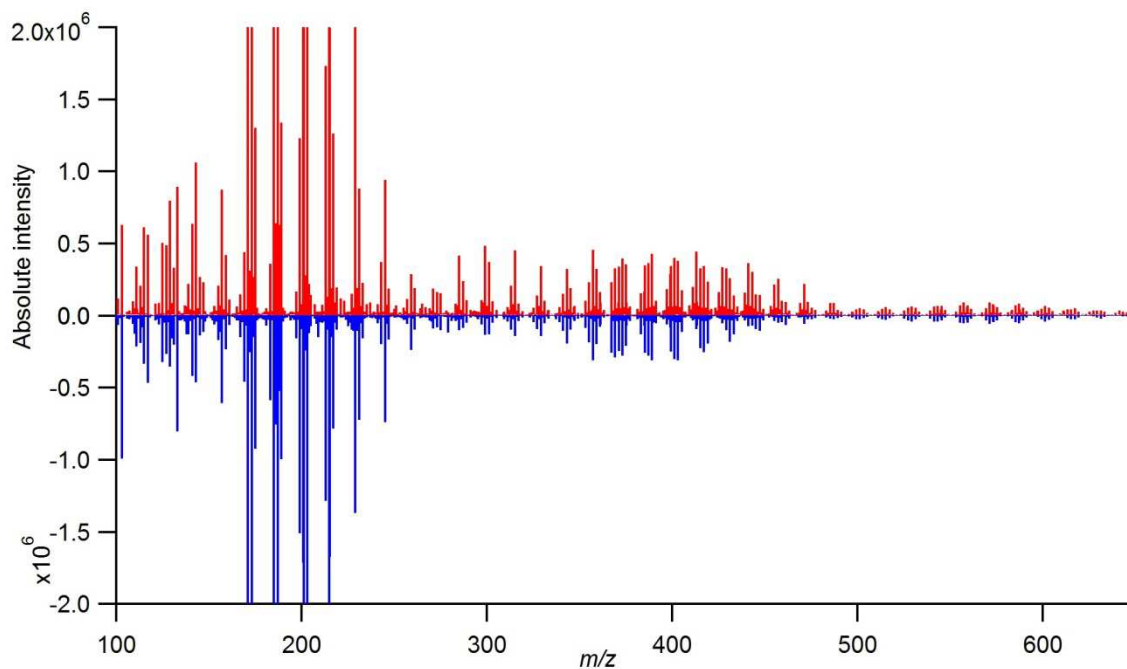
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3 Figure S5. Comparison of κ in this study with the parameterization of the relationship between κ
4 and O/C in the literature (Rickards et al., 2013). The blue markers show κ_{CCN} and the red
5 markers show κ_{HTDMA} . The lines show the upper and lower limits of the parameterization in
6 Rickards et al. (2013).

7



1
2 Figure S6. Mass spectra from nano ESI UHRMS of BSOA (red sticks, from experiment #B3
3 using α -pinene + limonene mixture as precursor) and ABSOA (blue sticks, from experiment
4 #AB6 using α -pinene+limonene+p-xylene mixture as precursor).