1 **Table S1.** Surface tensions of methyl-, ethyl and octyl-OS solutions and their mixed solutions with

2 ammonium sulfate (AS) as a function of concentration. The mass ratio of OS to AS in mixed

3 solutions was 1:5.

methyl-OS		ethyl-OS		octyl-OS	
concentration (mol L^{-1})	surface tension (mN m^{-1})	concentration (mol L^{-1})	surface tension (mN m^{-1})	concentration (mol L^{-1})	surface tension (mN m^{-1})
0.00068	76.33±0.20	0.00075	75.21±0.34	0.00043	74.21±1.20
0.00169	75.81±0.37	0.00186	74.97±0.41	0.00108	73.16±0.96
0.00338	75.07±0.19	0.00373	74.63±0.51	0.00215	72.16±0.79
0.00675	74.60±0.12	0.00746	74.14±0.37	0.00431	70.76±0.67
0.01013	74.46±0.13	0.01119	73.00±0.35	0.00646	70.95±0.33
0.01350	74.09±0.09	0.01492	72.54±0.78	0.00861	71.24±0.35
0.01688	73.67±0.20	0.01864	71.62±0.43	0.01076	69.12±0.31
0.02025	72.97±0.20	0.02237	73.90±0.37	0.01292	67.42±0.06
0.02363	73.25±0.45	0.02610	72.41±0.45	0.01507	66.52±0.16
0.03038	73.73±0.26	0.02983	72.74±0.53		
		0.03356	73.35±0.58		

methyl-OS/AS		ethyl-OS/AS		octyl-OS/AS	
concentration (mol L^{-1})	surface tension (mN m^{-1})	concentration (mol L^{-1})	surface tension (mN m^{-1})	concentration (mol L^{-1})	surface tension (mN m^{-1})
0.00151	76.00±0.10	0.00147	74.75±0.02	0.00135	74.92±0.23
0.00377	75.60±0.15	0.00372	74.95±0.31	0.00351	74.08±0.30
0.00755	74.73±0.22	0.00743	74.04±0.15	0.00702	73.39±0.20
0.01132	75.64±0.09	0.01115	74.63±0.39	0.01054	72.48±0.39
0.01510	75.46±0.25	0.01486	74.39±0.32	0.01405	71.64±0.26
0.01887	75.23±0.59	0.01858	74.23±0.70	0.01756	71.38±0.32

6
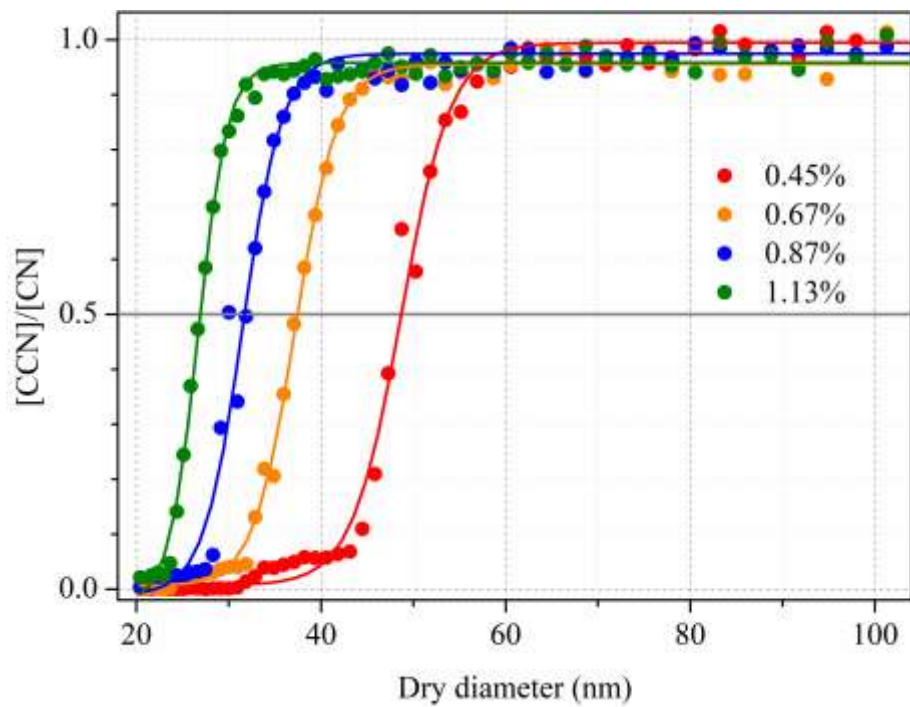
Figure S1. Activation fractions of ammonium sulfate aerosol as a function of dry particle diameter at four supersaturations.
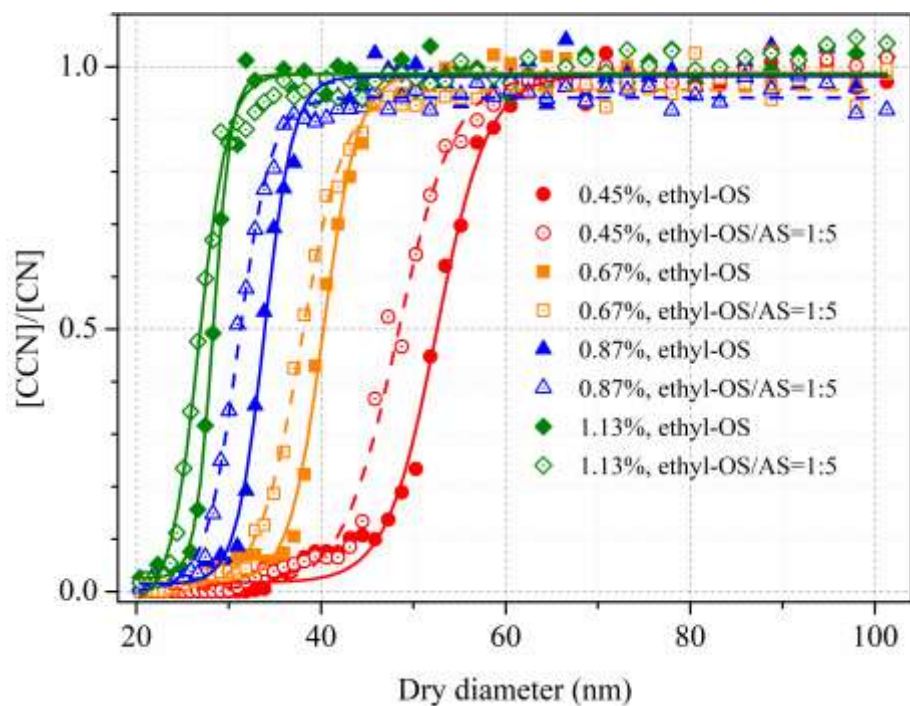
Figure S2. Activation fractions of ethyl-OS and its internally mixed aerosol particles with ammonium sulfate (AS) as a function of dry particle diameter at four supersaturations.
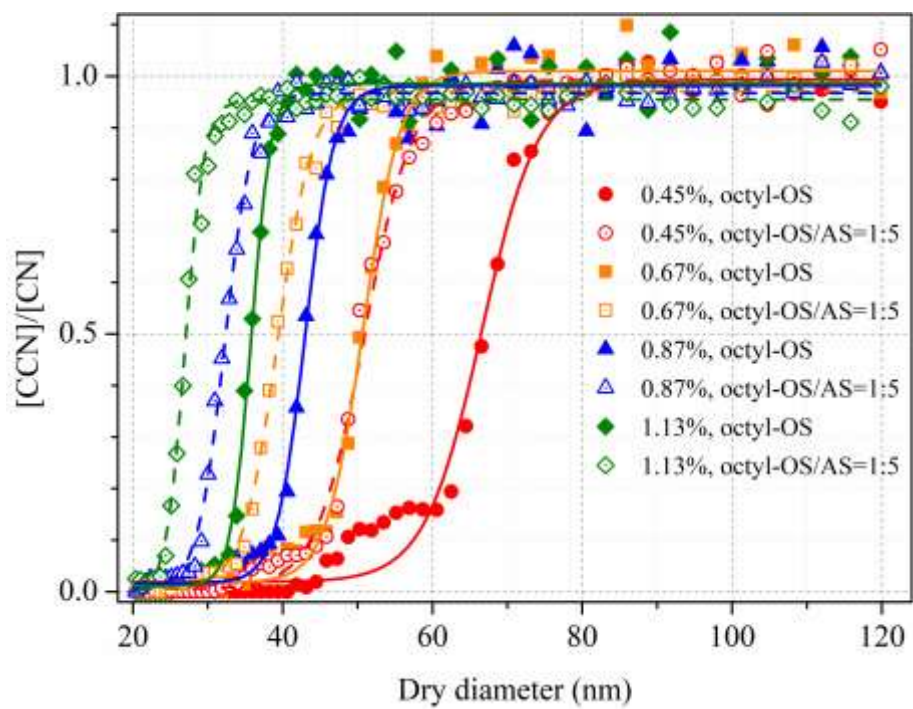
Figure S3. Activation fractions of octyl-OS and its internally mixed aerosol particles with ammonium sulfate (AS) as a function of dry particle diameter at four supersaturations.
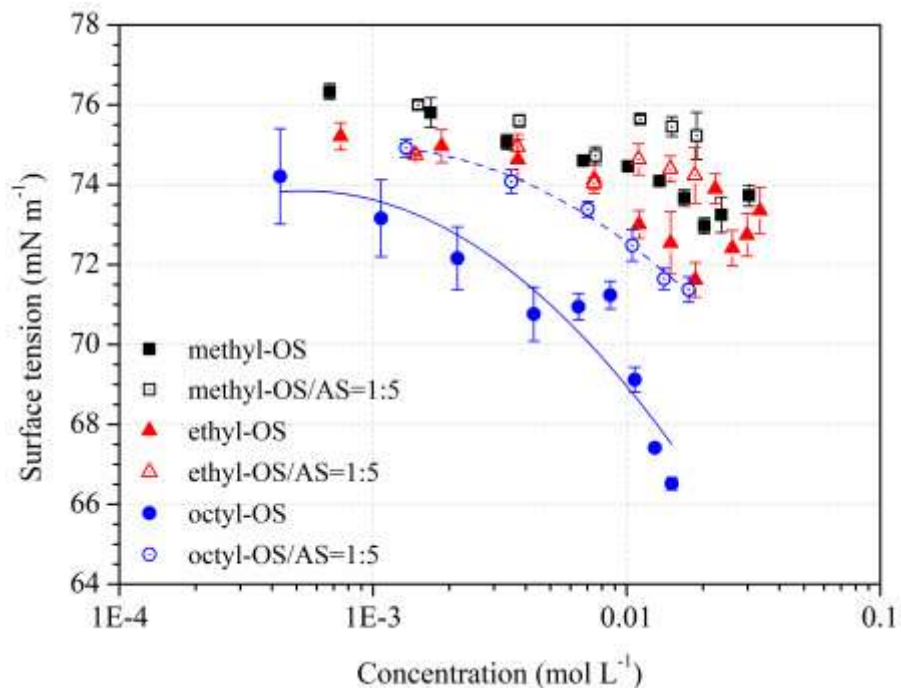
Figure S4. Surface tensions of methyl-, ethyl- and octyl-OS solutions and their mixed solutions with ammonium sulfate (AS) as a function of concentration. The mass ratio of OS to AS in mixed solutions was 1:5.