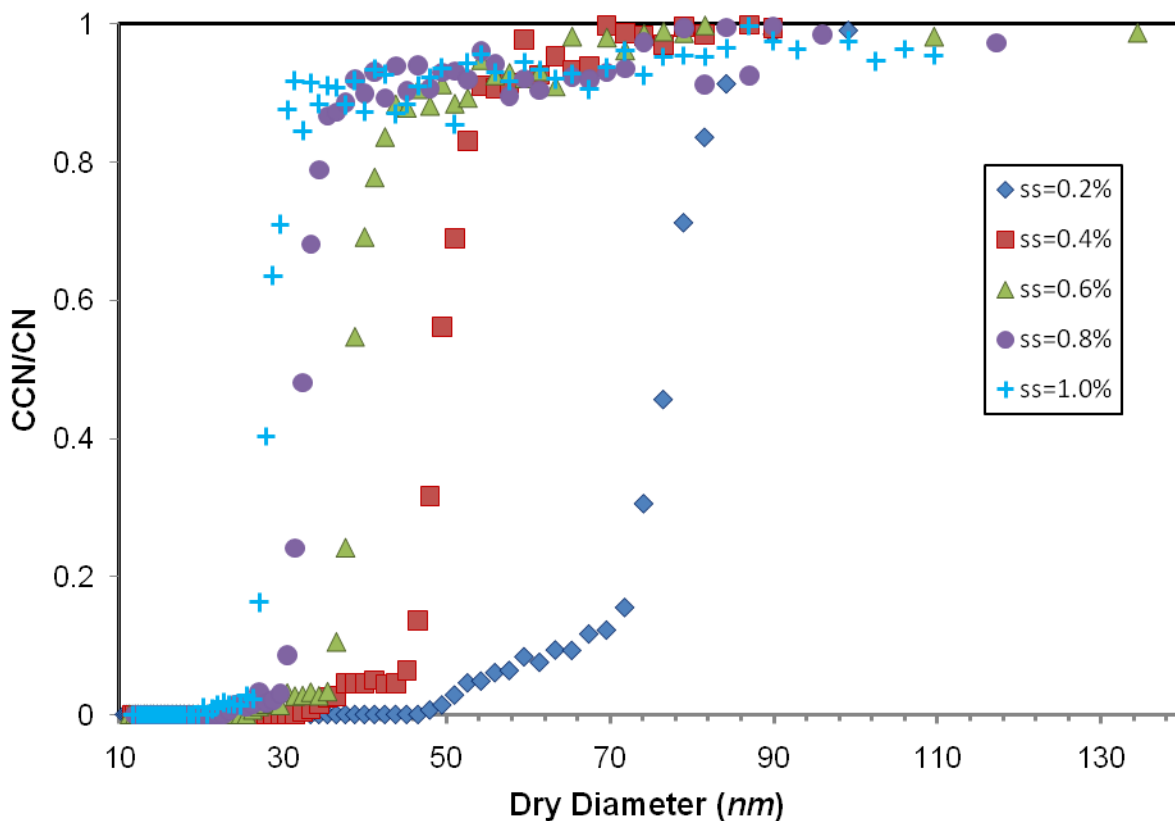


## Supplemental Material



**Figure S-1.** Calibration curve of ammonium sulfate particles at  $ss=0.2\%$ ,  $0.4\%$ ,  $0.6\%$ ,  $0.8\%$  and  $1.0\%$ . Critical diameter ( $d_{p50}$ ) for  $ss=0.2\%$ ,  $0.4\%$ ,  $0.6\%$ ,  $0.8\%$  and  $1.0\%$  is  $74.48\pm 2.15$ ,  $48.76\pm 0.87$ ,  $37.60\pm 0.85$ ,  $32.51\pm 0.73$  and  $28.59\pm 0.52$  (nm). Based on  $\kappa$ -Köhler theory, calculated instrument  $ss$  is  $0.20\%$ ,  $0.38\%$ ,  $0.56\%$ ,  $0.69\%$  and  $0.82\%$  correspondingly. The following  $(\text{NH}_4)_2\text{SO}_4$  properties are used in Köhler theory calculations; density =  $1.770 \text{ g cm}^{-3}$ , van't hoff factor =  $2.609$ ,  $2.504$ ,  $2.437$ ,  $2.387$  and  $2.348$  at  $ss=0.2\%$ ,  $0.4\%$ ,  $0.6\%$ ,  $0.8\%$  and  $1.0\%$  respectively.