Supplement of

Mass accommodation and gas–particle partitioning in secondary organic aerosols: dependence on diffusivity, volatility, particle-phase reactions, and penetration depth

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**Figure S1.** Temporal evolution of the gas phase concentration of organic compounds interacting with semisolid seed aerosol particles under the same conditions as in Fig. 2 but with $\alpha_s = 0.1$ instead of 1. (a) Non-reactive partitioning of compounds with different volatilities ($C^0 = 0.1$ to $1000 \, \mu g\, m^{-3}$) and (b) partitioning of semi-volatile compounds ($C^0 = 100 \, \mu g\, m^{-3}$) undergoing particle-phase reactions with different first-order loss rate coefficients ($k_b = 10^{-4}$ to $0.1 \, s^{-1}$). The red lines are simulated with KM-GAP and the blue lines are simulated by an aerosol dynamic model that employs the Fuchs-Sutugin approximation with $\alpha_{eff}$ for non-reactive partitioning (a) and for reactive uptake (b). The gray lines represent the MOSAIC approximate (dashed) and transient solutions (solid) (Zaveri et al., 2014).