Supplement of

Formation of secondary organic aerosol coating on black carbon particles near vehicular emissions

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PMF analysis

Figure S1: Q/Q_{expected} values as a function of number of PMF factors. A 4-factor solution, including two POA factors from traffic emissions and two SOA factors due to local photochemistry, was determined as a final solution.

Figure S2: Time series of 2-factor solution: (a) HOA and (b) OOA. Increasing the number of PMF factors to four splits HOA into HOA-rich and rBC-rich factors and OOA into OOA-1 and OOA-2 factors. The physical meanings of individual factors are described in the main text (RIE of 0.26 and 1.4 were applied for rBC and organic fragments, respectively).
Figure S3: Correlations between 4-factor and 2-factor solutions: (HOA-rich + rBC-rich) vs. HOA and (OOA-1 + OOA-2) vs. OOA. (RIE of 0.26 and 1.4 were applied for rBC and organic fragments, respectively)

Figure S4: Mass spectra (a-b) and diurnal cycles (c-d) of 2-factor solution from SP-AMS data within the hot period. (Box plots: 5th, 25th, 50th, 75th and 95th percentile, Filled circles: mean values for organic + Cx+ fragments, Red dashed lines: mean values for organic alone.)
Figure S5: Time series of the 4-factor solution: (a) HOA-rich, (b) rBC-rich, (C) OOA-1, and (d) OOA-2 (RIE of 0.26 and 1.4 were applied for rBC and organic fragments, respectively).
Figure S6: Mass spectra (a-d) and diurnal cycles (e-h) of 4-factor solution from HR-ToF-AMS data within the hot period. (Box plots: 5th, 25th, 50th, 75th and 95th percentile, Filled circles: mean values) (Chen et al., submitted)
Figure S7: Diurnal cycles of (a) rBC, NR-PM$_{rBC}$ components, including (b) Organics, (c) nitrate, (d) ammonium, (e) sulfate and (f) chloride, (g) ozone, (h) -log(NO$_x$/NO$_y$), (i) R$_{BC}$, (j) Org/rBC ratio, (k) O/C and (l) H/C of organic coating. The data points represent average values and the error bars represent one standard deviation.
References: