Characterization and risk assessment of particulate matter and volatile organic compounds in metro carriage in Shanghai, China

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Text S1. The details of standard curve method for the aromatic hydrocarbons and carbonyl compounds

Standard solutions are used to determine the concentrations of the VOCs. For the aromatic hydrocarbons, the original liquid standard (Catalog NO.: 120212-1, o2si smart solutions Inc., USA) was diluted by methanol (HPLC gradient grade, Sinoreagent Inc., China) to five grades. Same volume of the diluted standards would be injected directly into adsorbent bed in the Tenax TA tubes. These standard tubes would be analyzed as the same ATD-GC/MS method to the samples. To the carbonyl compounds, the original liquid standard (Catalog NO.: 132520-03, o2si smart solutions Inc., USA) was diluted to five grades. The diluted standards would be injected directly into DNPH-silica bed in the cartridges. These standard cartridges would be eluted by 5.0 mL acetonitrile (HPLC gradient grade, Sinoreagent Inc., China) and analyzed by HPLC method used for the field samples. The Standard solutions forced to pass through the origin were calculated from the test results with one replicate at each concentration.

Table S1. The equations and correlation coefficients (R^2) of standard curves for benzene, toluene, xylene, ethylbenzene, styrene, formaldehyde, acetaldehyde, acetone and acrolein

Compounds	Standard Curve equations	correlation coefficients (R^2)
Benzene	y=48742x	0.9974
Toluene	y=107522x	0.9994
Ethylbenzene	y=140473x	0.9991
P-xylene and M-xylene	y=269184x	0.9995
Styrene	y=100715x	0.9996
O-xylene	y=150612x	0.9998
Formaldehyde	y=28.193x	0.9977
Acetaldehyde	y=20.937x	0.9987
Acetone and Acrolein	y=38.168x	0.9980