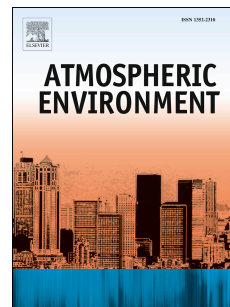


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Concentration, size distribution and dry deposition of amines in atmospheric particles of urban Guangzhou, China

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1 **Concentration, size distribution and dry deposition of amines in atmospheric**
2 **particles of urban Guangzhou, China**

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10 **HIGHLIGHTS**

- 11 ● Size-resolved particulate amines were first characterized in the Pearl River Delta region, China.
- 12 ● Σ Amines exhibited a predominant occurrence in the size fraction between 0.49-0.95 μm .
- 13 ● The contribution of amines-N to WSON decreased with increasing particle size.
- 14 ● The Σ amines/ammonium molar ratio ranged from 0.0068 to 0.0107 in $\text{PM}_{1.5}$ with a maximum at $< 0.49 \mu\text{m}$.
- 15 ● Dry deposition fluxes of amines were dominated by fine particles within PM_{10} .
- 16

17 **Abstract**

18 Size-segregated PM_{10} samples were collected in Guangzhou, China during autumn of 2014. Nine
19 amines, including seven aliphatic amines and two heterocyclic amines, were detected using a gas
20 chromatography-mass spectrometer after derivatization by benzenesulfonyl chloride. The total
21 concentration of the nine amines (Σ amines) was 79.6-140.9 ng m^{-3} in PM_{10} . The most abundant
22 species was methylamine (MA), which had a concentration of 29.2-70.1 ng m^{-3} . MA, dimethylamine
23 (DMA), diethylamine (DEA) and dibutylamine (DBA) were the predominant amines in the samples
24 and accounted for approximately 80% of Σ amines in each size segment. Two heterocyclic amines,

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