

## Supplementary Material

### Phthalate Ester Concentrations, Sources, and Risks in the Ambient Air of Tianjin, China

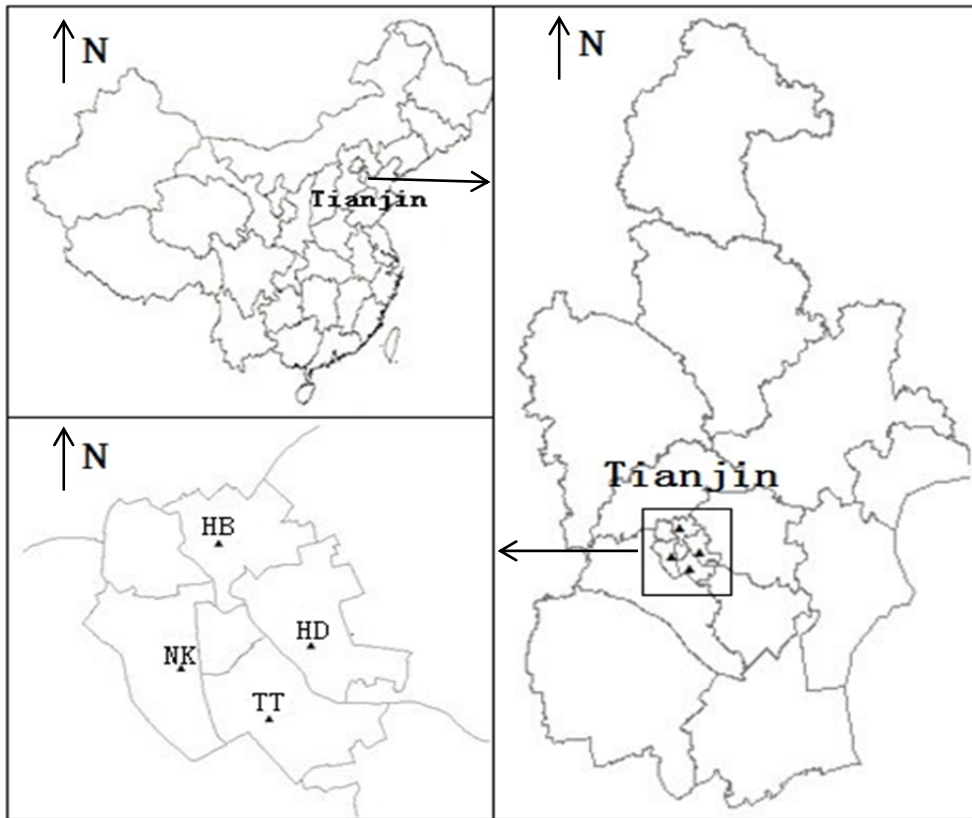
Zhenyu Zhu, Yaqin Ji\*, Shijian Zhang, Jingbo Zhao, Jie Zhao

*College of Environmental Science and Engineering, Nankai University, Weijin Road 94, Tianjin  
300071, China*

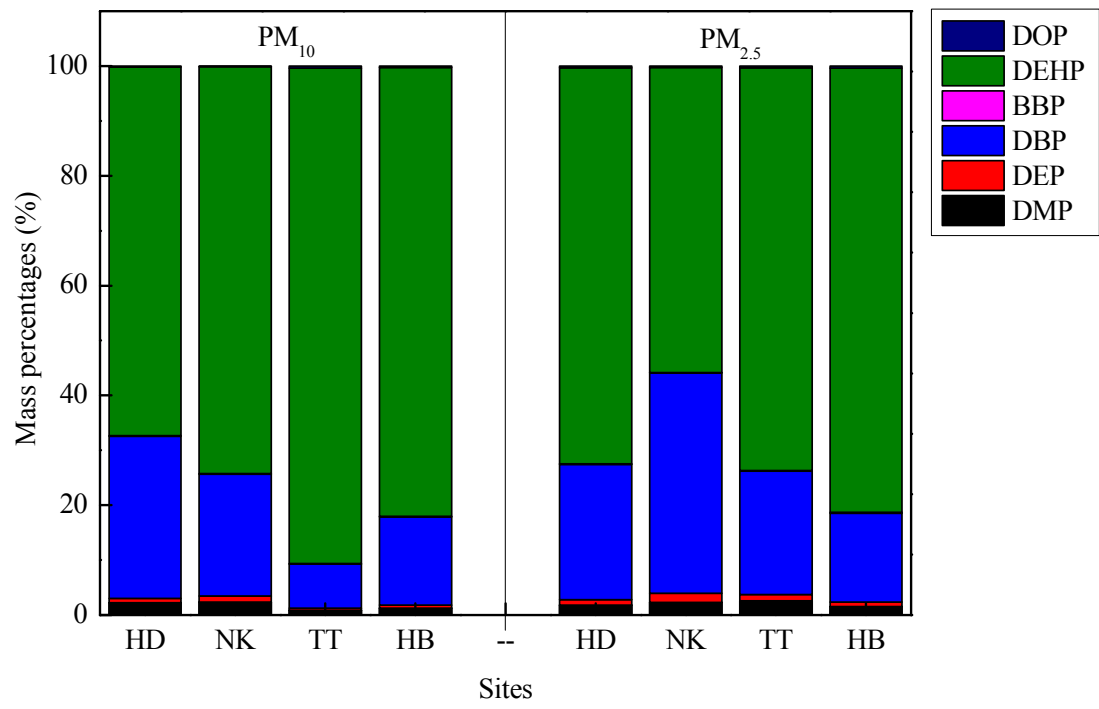
**Fig. S1.** Locations for sampling sites in Tianjin.

**Fig. S2.** Distribution of six PAEs in PM<sub>10</sub> and PM<sub>2.5</sub> at the four sites.

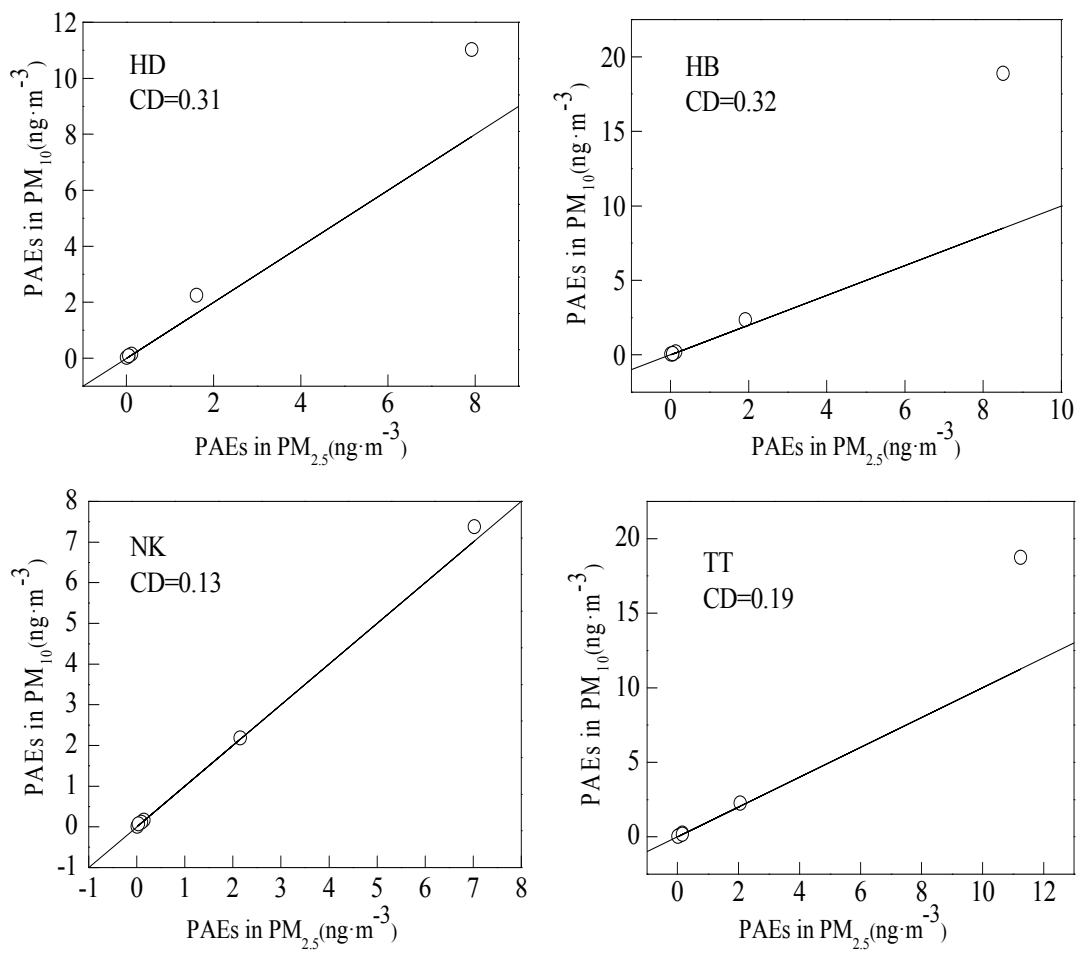
**Fig. S3.** Comparison of average concentrations of PAEs between PM<sub>10</sub> and PM<sub>2.5</sub> for different sites in Tianjin.



**Fig. S1.**



**Fig. S2.**



**Fig. S3.**

**Table S1.** Comparison for PAEs concentrations in particulate matter with our previous works in

Tianjin ( $\text{ng}\cdot\text{m}^{-3}$ )

**Table S2.** Median concentrations of six PAEs in particle-phase and gas-phase

**Table S1.** Comparison for PAEs concentrations in particulate matter with our previous works in Tianjin ( $\text{ng}\cdot\text{m}^{-3}$ )

Description	Size	DMP	DEP	DBP	BBP	DEHP	DOP	References
Four urban sites, ambient PM	PM <sub>10</sub>	0.18	0.08	2.24	0.02	10.79	0.10	This study
Sampling in Jan.,and Jul., 2014	PM <sub>2.5</sub>	0.14	0.07	1.93	0.02	6.26	0.05	
Seven urban sites, ambient PM	PM <sub>10</sub>	0.88	0.73	12.90	0.15	98.29	0.83	Kong et al. 2013
Sampling in Jan., Apr., and Jul., 2010	PM <sub>2.5</sub>	0.54	0.30	8.72	0.08	75.68	0.33	
Thirteen homes, indoor PM	PM <sub>10</sub>	9.02	1.55	318.37	0.63	92.30	0.21	Zhang et al., 2014
Sampling in Dec., 2010 and Jun., 2011	PM <sub>2.5</sub>	2.99	0.75	130.68	0.32	44.36	0.10	

The mean values were listed in the table.

**Table S2.** Median concentrations of six PAEs in particle-phase and gas-phase

	DMP	DEP	DBP	BBP	DEHP	DOP
$K_p(\text{m}^3 \cdot \mu\text{g})^a$	$1.92 \times 10^{-5}$	$6.67 \times 10^{-5}$	$6.52 \times 10^{-4}$	$1.13 \times 10^{-3}$	$6.37 \times 10^{-2}$	$6.37 \times 10^{-2}$
$F_{10}(\text{ng} \cdot \text{m}^{-3})$	0.147	0.055	1.519	0.004	2.904	0.017
$c_{g,10}(\text{ng} \cdot \text{m}^{-3})$	35.728	3.848	10.872	0.017	0.213	0.001
$c_{g,10+} F_{10}(\text{ng} \cdot \text{m}^{-3})$	35.875	3.903	12.391	0.021	3.117	0.018

<sup>a</sup>The value cited from the studies of Zhang et al. (2013)