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Fractionization of As and Se in Fly Ash by ultrasound-assisted sequential extraction

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Table S1

Measurements conditions of the atomic fluorescence spectrometry.

Parameter	As	Se
Negative high voltage (V)	270	280
Lamp current (mA)	60	80
Carrier gas flow (mL/min)	400	400
Shielded gas flow (mL/min)	800	800
Reading time (s)	7.0	7.0
Delay time (s)	1.1	1.2

Table S2

Characteristics of the FA samples.

Samples	pH	Major elements(%)					Size distribution(μm)		
		Ca	K	Fe	Al	Si	D10	D50	D90
1	10.5	4.3	1.7	6.7	29.9	51.0	1.64	7.60	17.91
2	8.7	3.0	1.8	7.6	33.1	46.9	14.76	47.34	120.01
3	9.8	5.2	1.0	4.1	37.5	45.6	2.74	10.55	32.50
4	11.6	7.1	1.1	4.0	33.6	48.1	4.93	26.55	119.75
5	10.9	4.1	2.3	9.5	19.5	59.1	2.65	29.64	159.53
6	9.2	2.9	1.1	6.8	33.6	49.9	1.69	7.60	19.26

D10, D50, D90: The particle size of the sample whose cumulative particle distribution reaches 10%, 50%, and 90%, respectively.

Table S3

Digestion procedure of As and Se in F5.

Step	1	2	3	4
Pressure(MPA)	1.0	1.5	2.0	2.5
Temperature(℃)	100	130	160	180
Power(W)	3000	3000	3000	3000
Heating up time(s)	500	200	200	500
Holding time(s)	60	60	60	1200

Text S1

The details of sampling sites and sampling procedures.

Six fly ash (FA) samples were collected from six power plants located in Hebei Province, China. There were Matou Power Plant, Hengshui Thermal Power Plant, Tangshan Power Plant, Zhangjiakou Power Plant, Chengde Thermal Power Plant and Xingtai Power Plant, respectively. The circulating fluidized bed boiler is equipped with a fabric filter used for fly ash capture. According to the small amount of samples collected every day, FA sample in one power plant was collected over three continuous working days. Then the samples collected from same power plant were mixed into one composite sample of fly ash. All the samples were ground, freeze-dried and sieved through 100 mesh for use.