

SUPPLEMENTARY MATERIALS

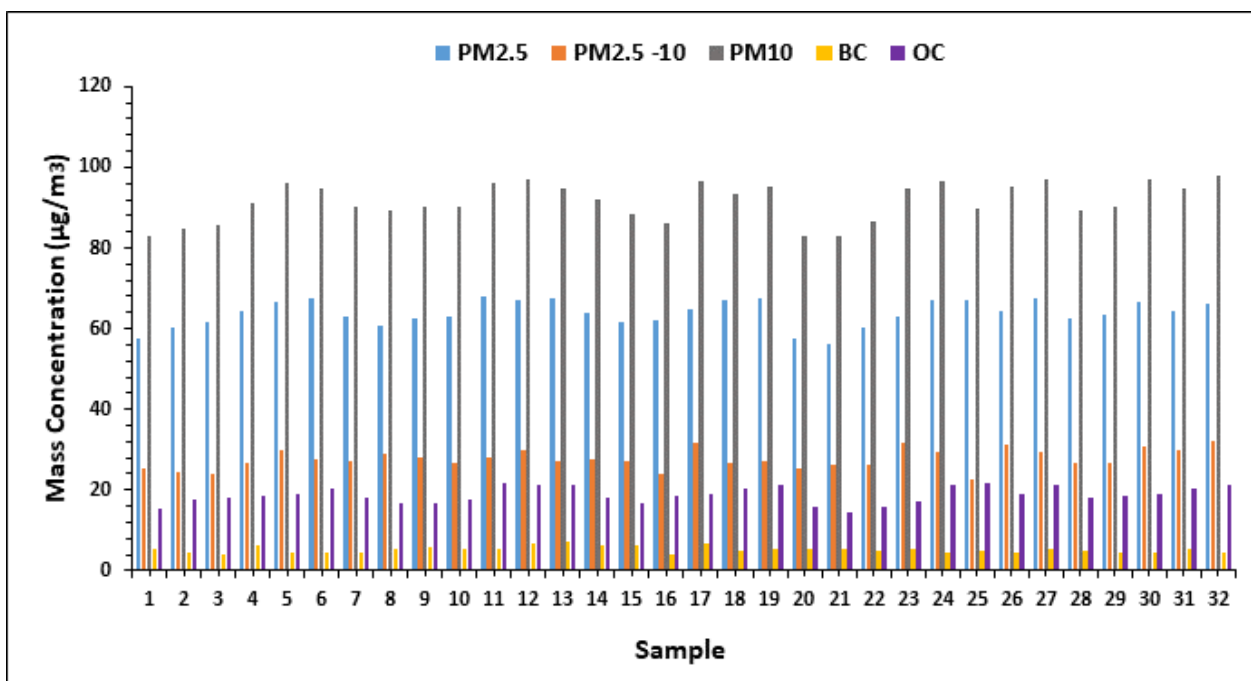


Fig. S1. Sample concentrations of PM_{2.5}, PM_{2.5-10}, PM₁₀, BC and OC at the Tuanku Tambusai site.

Table S1. Uncertainty of BC, OC, elements, and ions and the method detection limit (MDL) of elements and ions.

Sample	BC Unc. ($\mu\text{g m}^{-3}$)		OC Unc. ($\mu\text{g m}^{-3}$)	Elements and ions ($\mu\text{g m}^{-3}$)			
	Fine	Coarse		MDL	Fine Unc.	Coarse Unc.	
1	5.045	0.455	5.519	Cu	0.015	0.015	0.015
2	4.287	0.386	6.291	Pb	0.022	0.022	0.018
3	4.205	0.379	6.398	Zn	0.044	0.044	0.037
4	5.590	0.504	6.536	Ni	0.009	0.009	0.008
5	4.296	0.387	6.777	Co	0.033	0.028	0.028
6	4.231	0.381	7.209	Fe	0.086	0.098	0.087
7	4.455	0.401	6.476	Mn	0.017	0.017	0.014
8	5.090	0.459	5.976	Ca	0.114	0.133	0.114
9	5.151	0.464	6.015	Mg	0.106	0.106	0.088
10	4.875	0.439	6.267	Na	0.068	0.069	0.068
11	4.981	0.449	7.670	K	0.067	0.077	0.068
12	5.782	0.521	7.564	Al	0.103	0.369	0.104
13	6.350	0.572	7.603	Cd	0.001	0.001	0.001
14	5.386	0.485	6.483	Cr	0.008	0.008	0.008
15	5.597	0.504	5.866	Mo	0.002	0.002	0.002
16	4.088	0.368	6.536	Sb	0.002	0.002	0.002
17	5.890	0.531	6.777	Li	0.001	0.001	0.001
18	4.652	0.419	7.209	Ti	0.020	0.020	0.020
19	4.965	0.447	7.479	Si	0.113	0.113	0.113
20	4.922	0.443	5.632	V	0.012	0.010	0.010
21	5.013	0.452	5.200	As	0.015	0.013	0.013
22	4.758	0.429	5.629	SO₄⁻	0.330	0.610	0.217
23	5.004	0.451	6.142	NO₃⁻	0.420	0.429	0.164
24	4.497	0.405	7.564	Cl⁻	0.570	0.556	0.137
25	4.542	0.409	7.709	Na⁺	0.120	0.114	0.053
26	4.223	0.380	6.741	NH₄⁺	0.065	0.121	0.022
27	4.953	0.446	7.603	K⁺	0.078	0.083	0.047
28	4.805	0.433	6.483	Mg²⁺	0.088	0.011	0.014
29	4.225	0.381	6.536	Ca²⁺	0.110	0.041	0.026
30	4.372	0.394	6.777				
31	4.975	0.448	7.209				
32	4.291	0.387	7.479				

Abbreviations: Unc, uncertainty; BC, black carbon; OC, organic carbon.

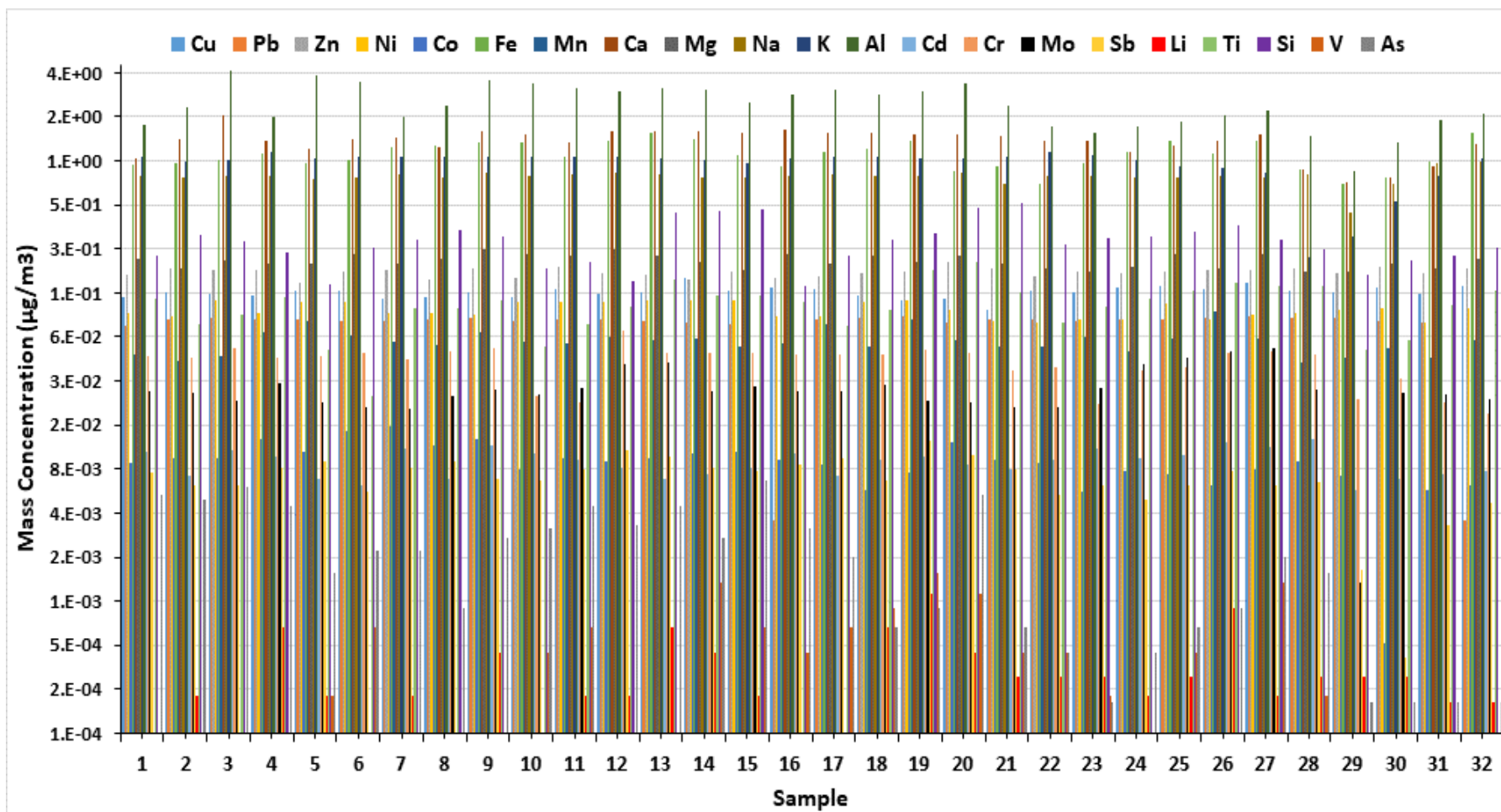


Fig. S2. Elemental concentrations in PM_{2.5} (µg m⁻³).

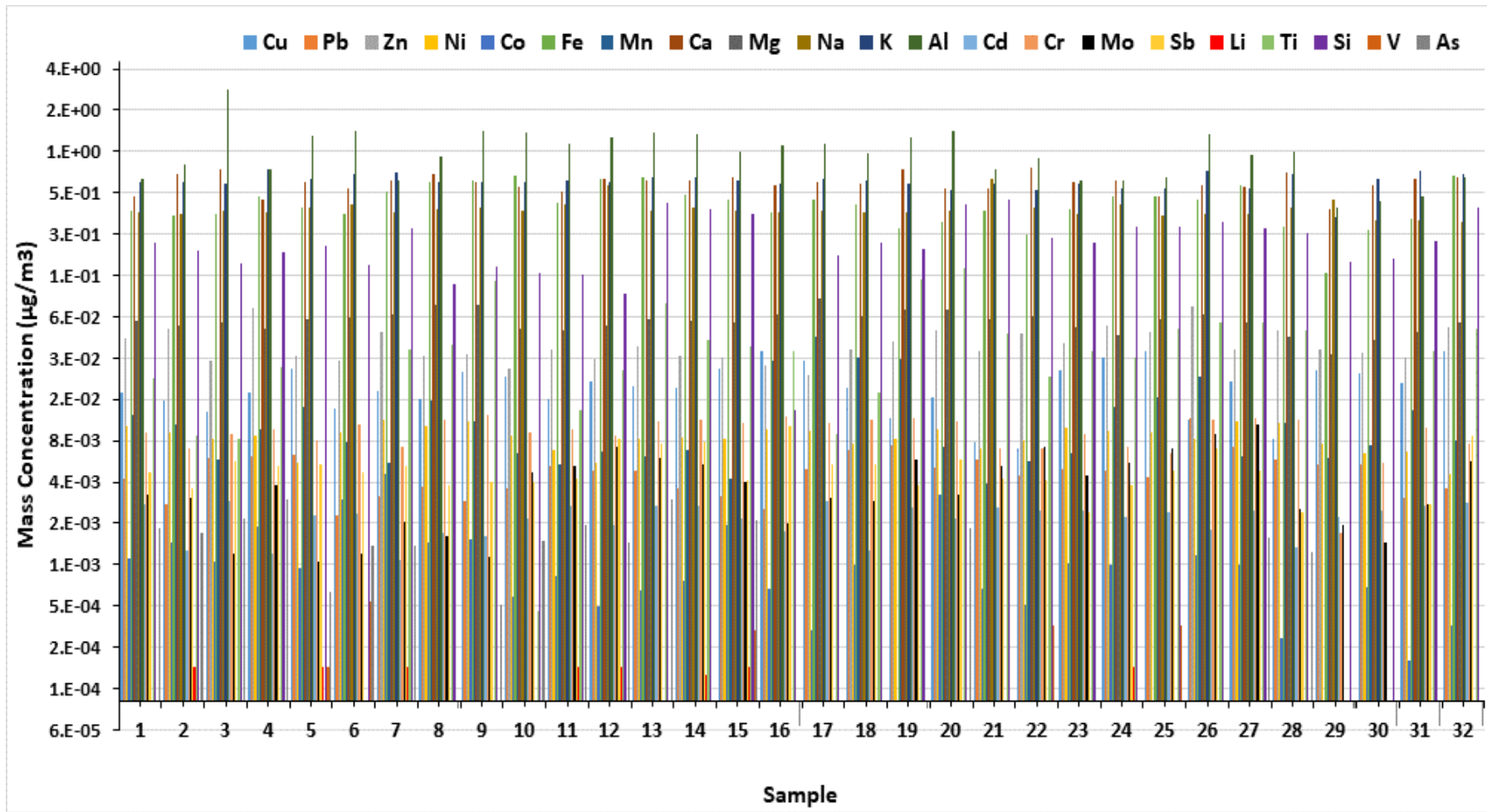


Fig. S3. Elemental concentrations in PM_{2.5-10} (µg m⁻³).

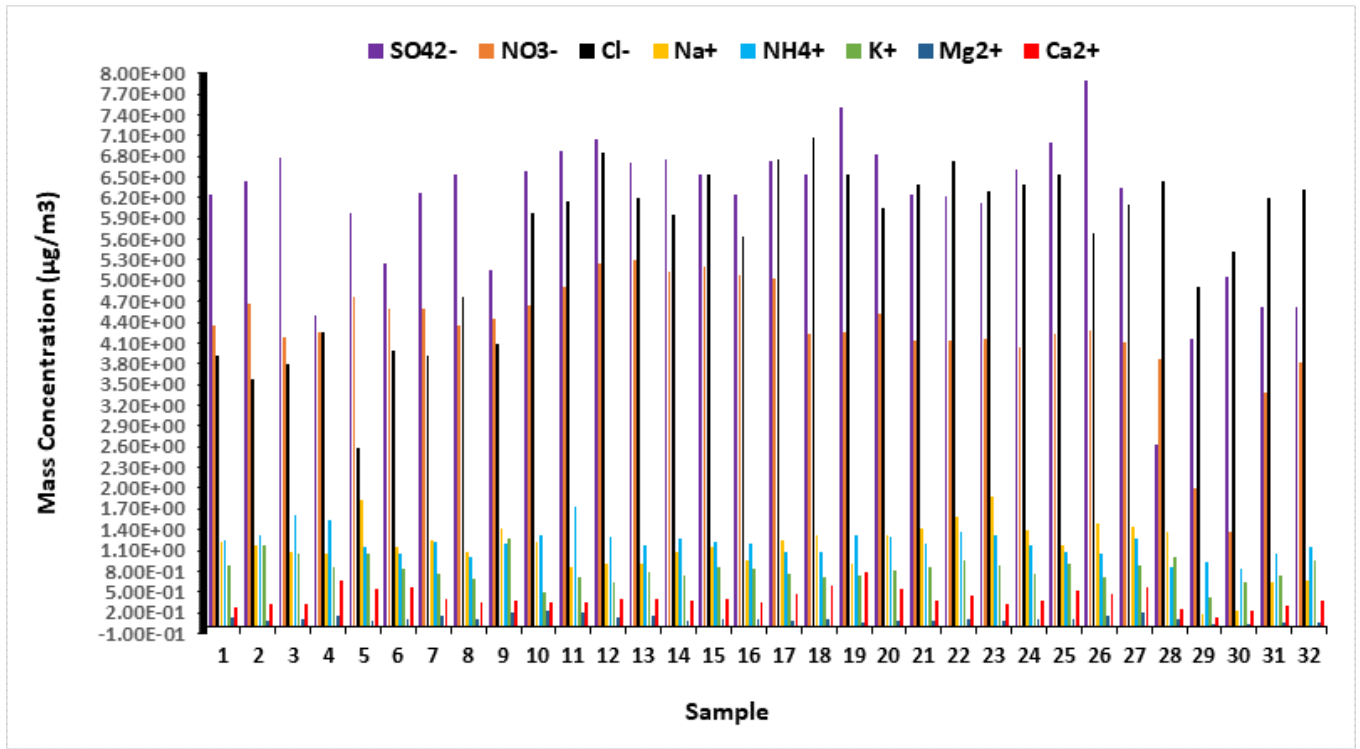


Fig. S4. Ion concentrations in PM_{2.5} (µg m⁻³).

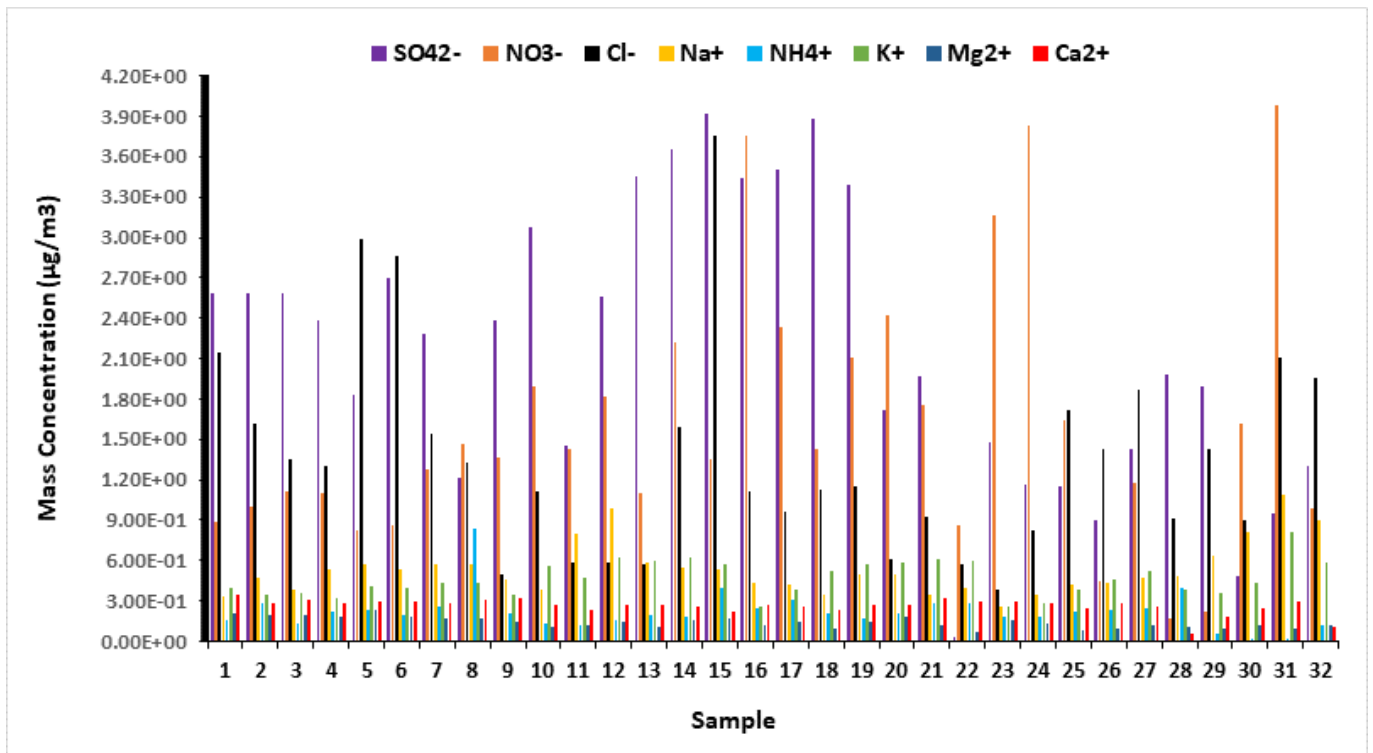


Fig. S5. Ion concentrations in PM_{2.5-10} (µg m⁻³).

Table S2. The UR and RfCi values of some potentially toxic metals.

Element	Unit Risk (UR) ($\mu\text{g m}^{-3}$) ⁻¹	Source	RfCi ($\mu\text{g m}^{-3}$)	Source
V	8.3×10^{-3}	a	1.0×10^{-4}	d
Cr	1.2×10^{-2}	b	1.4×10^{-4}	d
Co	9.0×10^{-3}	a	6.0×10^{-6}	b
Ni	2.6×10^{-4}	b	1.4×10^{-5}	c
As	4.3×10^{-3}	b	1.5×10^{-5}	c
Cd	1.8×10^{-3}	b	1.0×10^{-5}	d
Pb	1.2×10^{-5}	c	1.5×10^{-4}	d
Al			5.0×10^{-3}	d
Mn			5.0×10^{-5}	e
Zn			1.05	f
Cu			0.14	g

^a Provisional Peer-Reviewed Toxicity Values for Superfund Chronic Inhalation Reference Concentration.

^b Risk Assessment Information System Toxicity Values and Physical Parameter Search.

^c California Environmental Protection Agency Chronic Inhalation Reference Concentration.

^d United States Environmental Protection Agency IRIS Assessments.

^e EPA Integrated Risk Information System Chronic Inhalation Reference Concentration.

^f Derived from EPA Integrated Risk Information System Chronic Oral Reference Dose.

^g US-EPA Region 9 Environmental Protection Agency, Toxicity, and Chemical/Physical Properties for Regional Screening Level (RSL) of Chemical Contaminants at Superfund Sites.

Table S3. HQ and CR via inhalation exposure for adults and children.

Element	Adult				Child			
	HQ PM _{2.5}	HQ PM _{2.5-10}	CR PM _{2.5}	CR PM _{2.5-10}	HQ PM _{2.5}	HQ PM _{2.5-10}	CR PM _{2.5}	CR PM _{2.5-10}
V	0.0045	0.0003	1.27×10^{-5}	8.86×10^{-7}	0.0162	0.0013	1.15×10^{-5}	8.04×10^{-7}
Cr	0.3721	0.0802	2.14×10^{-3}	4.62×10^{-5}	0.5505	0.2909	1.94×10^{-3}	4.19×10^{-5}
Co	1.2006	0.2154	3.33×10^{-4}	3.99×10^{-5}	1.3354	0.3818	3.02×10^{-4}	3.62×10^{-5}
Ni	1.4654	0.8339	9.75×10^{-5}	8.45×10^{-6}	1.5226	0.8638	8.85×10^{-5}	7.67×10^{-6}
As	0.1879	0.0632	4.16×10^{-5}	1.40×10^{-5}	0.4820	0.0296	3.77×10^{-5}	1.27×10^{-5}
Cd	0.3243	0.2642	6.69×10^{-5}	1.63×10^{-5}	0.3356	0.2589	6.07×10^{-5}	1.48×10^{-5}
Pb	0.6329	0.0391	3.91×10^{-6}	2.41×10^{-7}	0.2297	0.0218	3.54×10^{-6}	2.19×10^{-7}
Al	0.6161	0.1525	-	-	0.2363	0.0164	-	-
Mn	1.4554	0.2995	-	-	1.2824	0.1087	-	-
Zn	0.0002	0.0005	-	-	0.0007	0.0002	-	-
Cu	0.0012	0.0018	-	-	0.0041	0.0007	-	-
Total	6.26	1.95	2.70×10^{-3}	1.26×10^{-4}	6.00	1.97	2.45×10^{-3}	1.14×10^{-4}