SUPPLEMENTARY INFORMATION

Table S1: Values of risk parameters used for calculating HQs and ILCRs for children and adults exposed to PHEs associated with ACFD of mosques.

Factor	Description	Value		References
		Children	Adults	
C	Concentration of PHEs in dusts (mg/kg)			Present study
IngR	Ingestion rate of dust (mg/day)	200	100	USEPA [1]; Gope et al. [2]
EF	Exposure frequency (days/year)	(2.5h/24h)*350 =38.02 day/year)	(2.5h/24h)*350 =38.02 day/year)	Peng et al. [3]; Zheng et al. [4]; ESAG [5]
ED	Exposure duration (years)	6	24	USEPA [6]; USEPA [7,8]
BW	Average body weight (kg)	15	70	Hu et al. [9]; Lu et al. [10]; USEPA [11]
AT	Average time (non-carcinogenic effects) (days)	ED x 365	ED x 365	USEPA [12]
AT	Average time (carcinogenic effects) (days)	70 yr ×365	70 yr ×365	USEPA [12]
CF	Conversion factor (kg/mg)	1×10^{-6}	1×10^{-6}	Li et al. (2011)
InhR	Inhalation rate of dust (m^3/day)	7.63	12.8	Li et al. [13]; USEPA [6]
PEF	Particular emission factor (m^3/kg)	1.36×10^9	1.36×10^9	USEPA [7,8]
SA	Exposed surface area of skin (cm^2)	1600	4350	Zheng et al. [4]; ESAG [5]
AF	Skin adherence factor (mg/cm^2)	0.2	0.7	USEPA [1]
ABF	Absorption factor (Dermal)	0.001	0.001	Wei et al. [14]; USEPA [7,8]

Table S2: Reference Doses (R_fD, mg kg^{-1} day^{-1}) of different PHEs used to calculate HQs.

	Fe	Mn	Zn	Pb	Cd	V	Co.	Ni	As	Cr	Cu	References
Rf D_{ing}	8.40E+00	4.70E−02	3.00E−01	3.50E−03	1.00E−03	7.00E−03	2.00E−02	2.00E−02	3.00E−04	3.00E−03	4.00E−02	Ali et al., [15]; Shabbaj et al., [16], Li et al., [17]; Alghamdi et al., [18]
Rf D_{inh}	2.20E−04	1.43E−05	3.00E−01	3.52E−03	1.00E−03	7.00E−03	5.71E−06	2.06E−02	3.01E−04	2.86E−05	4.02E−02	
Rf D_{dermal}	7.00E−02	1.84E−03	6.00E−02	5.25E−04	1.00E−05	7.00E−05	1.60E−02	5.40E−03	1.23E−04	5.00E−05	1.20E−02	

Table S3: Carcinogenic Slope Factor (CSF, (mg kg^{-1} $day^{-1})^{-1}$) of different PTEs used to calculate CR [19].

	CSF			References
	$CSF_{Ing.}$	$CSF_{Inh.}$	CSF_{Dermal}	
Cr	0.50	42.00	20.00	Zheng et al. [20]; Kamunda et al. [21]; Ying et al. [22]; Adimalla [23]
Ni	1.70	0.84	42.50	Huang et al. [24]; Lu et al. [25]; Adimalla [23]
Cd	0.38	0.38	6.10	Lu et al. [25]; Kamunda et al. [21]
Pb	0.01	0.04	0.01	Pavilonis et al. [26]; Kamunda et al. [21]; Bello et al. [27]; Johnbull et al. [28]
Co	-	9.80	-	Lu et al. [25]; Zheng et al. [20]; Bello et al. [27]
As	1.50	1.50	7.50	Lu et al. [25]; Ying et al. [22]; Pavilonis et al. [26]

Table S4. Geo-accumulation index (I_{geo}), contamination factor (C_f), degree of contamination (C_d) and pollution load index (*PLI*) of PHEs in ACFD of Jubail, Dammam metropolitan and Jeddah mosques

		Potentially harmful elements (PHEs)										
		As	Cd	Co	Cr	Cu	Fe	Mn	Ni	Pb	V	Zn
Jubail mosques	I_{geo}^a	0.67	1.86	-3.06	-1.73	0.96	-2.94	-1.89	-1.36	1.44	-2.84	2.86
	I_{geo}^b	0.35	0.86	-0.59	-0.45	2.41	-1.36	-1.01	0.40	1.17	-0.87	2.65
Dammam metropolitan mosques	I_{geo}^a	0.75	2.01	-2.47	-1.55	1.34	-2.94	-2.39	-1.21	1.53	-2.64	2.99
	I_{geo}^b	0.43	1.01	-0.07	-0.28	2.78	-1.32	-1.52	0.54	1.25	-0.68	2.78
Jeddah mosques	I_{geo}^a	0,46	2.25	-1.89	-0.81	1.38	-2.47	-2.06	-1.18	2.56	-1.74	2.99
	I_{geo}^b	0.14	1.25	0.57	0.46	2.82	-0.84	-1.17	0.58	2.27	0.20	2.78
Jubail mosques	C_f^a	2.39	5.44	0.18	0.45	2.93	0.19	0.41	0.58	4.09	0.21	10.92
	C_f^b	1.91	2.72	1.00	1.10	7.96	0.58	0.74	1.99	3.37	0.82	9.43
Dammam metropolitan mosques	C_f^a	2.53	6.06	0.26	0.51	3.79	0.20	0.29	0.64	4.34	0.24	11.89
	C_f^b	2.02	3.03	1.43	1.23	10.33	0.60	0.52	2.18	3.57	0.94	10.28
Jeddah mosques	C_f^a	2.07	7.16	0.41	0.85	3.90	0.28	0.37	0.66	8.81	0.45	11.94
	C_f^b	1.66	3.58	2.23	2.07	10.61	0.84	0.67	2.24	7.24	1.72	10.32
Jubail mosques	C_d^a	27.85										
	C_d^b	31.61										
Dammam metropolitan mosques	C_d^a	30.83										
	C_d^b	36.13										
Jeddah mosques	C_d^a	37.00										
	C_d^b	43.17										
Jubail mosques	PLI^a	3.35										
	PLI^b	349.91										
Dammam metropolitan mosques	PLI^a	6.19										
	PLI^b	563.53										
Jeddah mosques	PLI^a	30.47										
	PLI^b	2378.53										

[a] based on the global crustal average data
[b] based on the local background soil

Table S5. Classification values and qualitative description of enrichment factor, geo-accumulation index, contamination factor and ecological risk indices

Pollution and risk indicators	Classification values	Qualitative designation of SW dust
Enrichment factor (EF)[a]	<1	No enrichment
	1–2	Light enrichment
	2–5	Moderate enrichment
	5–20	Significant enrichment
	20–40	Strong enrichment
	>40	Extreme enrichment
Geo-accumulation index (I_{geo})[b]	$I_{geo} \leq 0$	Uncontaminated
	$0 < I_{geo} \leq 1$	Uncontaminated to moderately contaminated
	$1 < I_{geo} \leq 2$	Moderately contaminated
	$2 < I_{geo} \leq 3$	Moderately to heavily contaminated
	$3 < I_{geo} \leq 4$	Heavily contaminated
	$4 < I_{geo} \leq 5$	Heavily to extremely contaminated
	$I_{geo} > 5$	Extremely contaminated
Contamination factor (C_f)[c]	Cf <1	Low contamination
	Cf = (1–3)	Moderate contamination
	Cf = (3–6)	Considerable contamination
	Cf = (>6)	Very high contamination
Contamination degree (C_d)[d]	Cd < 8	Low degree of contamination
	8 < Cd ≤16	Moderate degree of contamination
	16 < Cd≤ 32	Moderate to a strong degree of contamination
	Cd > 32	Very strong degree of contamination
Pollution load index (PLI)[e,f]	PLI <1	No pollution
	1 ≤ PLI < 2	Slight pollution
	2 ≤ PLI < 3	Moderate pollution
	3 ≤ PLI	Heavy pollution
Ecological risk (ER and ERI)[f, g]	ER<40; ERI<150	Lower potential ecological risk
	40 ≤ER< 80; 150≤ ERI<300	Moderate level of potential ecological risk
	80 ≤ ER<160; 300 ≤ ERI<600	Considerable potential ecological risk
	160≤ ER<320; ERI ≥ 600	Very high potential ecological risk
	ER ≥ 320	Dangerous

[a] Li et al. [29]; [b] Zhang et al. [30]; [c] Liu et al. [31]; [d]Yaylalı-Abanuz [32]; [e] Gope et al. [33]; [f] Mohammadi et al. [34]; [g]Zhang et al. [30]

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