

Section S-1. Analytical performance parameters and identification criteria

To identify and confirm the analyzed compounds, the criteria described in Commission Regulation 2017/771 (EU, 2017) and EPA method 1613 (USEPA, 2014) have been used:

- a) The absolute retention time obtained in the verification test for internal standards $^{13}\text{C}_{12}$ -1,2,3,4-TCDD and $^{13}\text{C}_{12}$ -1,2,3,7,8,9-HxCDD must not exceed ± 15 seconds with respect to retention times obtained in the calibration curve.
- b) The ratio of the ions (qualifier and quantifier) must not show a difference of more than 15% with respect to the theoretical values.
- c) The resolution of the instrument maintained at 10,000 (10% valley).
- d) The standard deviation of the relative response factors of the response factors should be used to evaluate each calibration curve.
- e) Spiked samples at three different concentration levels must be used as quality control of the native compounds (dioxins and dl-PCB). A 20% difference in recoveries will be considered acceptable.
- f) The range of recoveries of the surrogates (EPA 1613-LCS and WP-LCS) should be between 60-120 %, except for OCDD (50-100 %).

Table S1. Sampling dates of the analyzed filters and total sample volume (m³).

Estación	Date filter 1	Date filter 2	Total volume (m³)	Code
Chiva	25/02/2020	04/03/2020	1473.31	C1
	12/03/2020	13/03/2020	1453.25	C2
	28/03/2020	29/03/2020	1448.20	C3
	03/04/2020	05/04/2020	1444.14	C4
	09/04/2020	10/04/2020	1453.94	C5
	28/04/2020	29/04/2020	1460.58	C6
	06/05/2020	07/05/2020	1466.30	C7
	12/05/2020	14/05/2020	1457.44	C8
	22/05/2020	23/05/2020	1471.85	C9
	30/05/2020	31/05/2020	1470.17	C10
	01/06/2020	02/06/2020	1471.85	C11
	04/06/2020	05/06/2020	1469.78	C12
	16/06/2020	17/06/2020	1469.14	C13
Buñol	04/08/2020	05/08/2020	1454.05	B1
	20/08/2020	21/08/2020	1460.07	B2
	28/08/2020	29/08/2020	1457.37	B3
	31/08/2020	01/09/2020	1443.88	B4
	05/09/2020	06/09/2020	1443.88	B5
	08/09/2020	09/09/2020	1435.79	B6
	24/09/2020	25/09/2020	1440.51	B7
	29/09/2020	30/09/2020	1436.46	B8
	06/10/2020	07/10/2020	1439.88	B9
	13/10/2020	14/10/2020	1438.70	B10

Table S2. Inhalation Unit risk ($\mu\text{g}/\text{m}^3$)⁻¹ and Slope Factor $\left(\frac{\text{mg}}{\text{kg day}^{-1}}\right)^{-1}$

Analyte	IUR ($\mu\text{g}/\text{m}^3$) ⁻¹	SF ($\text{mg}/\text{kg day}^{-1}$) ⁻¹
PCB-81	0.0110	38.5
PCB-77	0.0038	13.3
PCB-123	0.0011	3.85
PCB-118	0.0011	3.85
PCB-114	0.0011	3.85
PCB-105	0.0011	3.85
PCB-126	38.000	13300
PCB-167	0.0011	3.85
PCB-157	0.0011	3.85
PCB-156	0.0011	3.85
PCB-169	11.000	3850
PCB-189	0.0011	3.85
2,3,7,8-TCDF	38.000	13300
2,3,7,8-TCDD	380.000	133000
1,2,3,7,8-PCDF	11.000	3850
2,3,4,7,8-PCDF	110.000	38500
1,2,3,7,8-PCDD	380.000	133000
1,2,3,4,7,8-HxCDF	38.000	13300
1,2,3,6,7,8-HxCDF	38.000	13300
2,3,4,6,7,8-HxCDF	38.000	13300
1,2,3,7,8,9-HxCDF	38.000	13300
1,2,3,4,7,8-HxCDD	38.000	13300
1,2,3,6,7,8-HxCDD	38.000	13300
1,2,3,7,8,9-HxCDD	38.000	13300
1,2,3,4,6,7,8-HpCDF	0.3800	1330
1,2,3,4,7,8,9-HpCDF	0.3800	1330
1,2,3,4,6,7,8-HpCDD	0.3800	1330
OCDF	0.0110	38.5
OCDD	0.0110	38.5

Table S3. Concentrations of Σ PCDD / Fs + dl-PCBs, Σ dl-PCBs and Σ PCDD / Fs obtained at Chiva (C) and Buñol (B) stations in fg TEQ / m³

Muestras	Σ dl-PCBs	Σ PCDD/Fs	Σ (PCDD/Fs + dl-PCBs)
C1 (25/02-04/03)	1.45	2.62	4.06
C2 (12-13/03)	1.44	4.98	6.43
C3 (28-29/03)	1.15	4.58	5.74
C4 (03-05/04)	1.42	3.51	4.93
C5 (09-10/04)	0.59	2.68	3.26
C6 (28-29/04)	1.42	2.68	4.10
C7 (06-07/05)	1.85	4.07	5.92
C8 (12-14/05)	0.96	2.34	3.30
C9 (22-23/05)	3.03	13.38	16.41
C10 (30-31/05)	1.46	1.81	3.26
C11 (01-02/06)	1.87	40.66	42.53
C12 (04-05/06)	0.99	39.15	40.13
C13 (16-17/06)	1.02	30.26	31.28
B1 (04-05/08)	0.98	3.16	4.14
B2 (20-21/08)	1.39	2.66	4.05
B3 (28-29/08)	1.42	1.95	3.36
B4 (31/08-01/09)	1.43	1.29	2.72
B5 (05-06/09)	0.95	1.22	2.17
B6 (08-09/09)	0.99	0.86	1.85
B7 (24-25/09)	0.51	1.37	1.88
B8 (29-30/09)	1.44	1.83	3.27
B9 (06-07/10)	1.60	2.47	4.06
B10 (13/14-10)	2.36	1.52	3.87

Table S4. Exposure of dioxins and furans in adults in the vicinity of cement plants

Studies	Year	Country	DID (pg WHO TEQ kg ⁻¹ b.w. day ⁻¹)
<i>Rovira et al. 2015</i>	2011	Sta. Margarida i els Monjos, Catalonia	2.5*10 ⁻³
	2012		2.6*10 ⁻³
<i>Mari et al. 2017</i>	2013	Sant Vicenç dels Horts, Catalonia	NA
	2015		2.1*10 ⁻³
<i>Rovira et al. 2016</i>	2014	Montcada, Catalonia	1.2*10 ⁻²
<i>Mari et al. 2018</i>	2017	Alcanar, Catalonia	2.8*10 ⁻³

NA= Not available

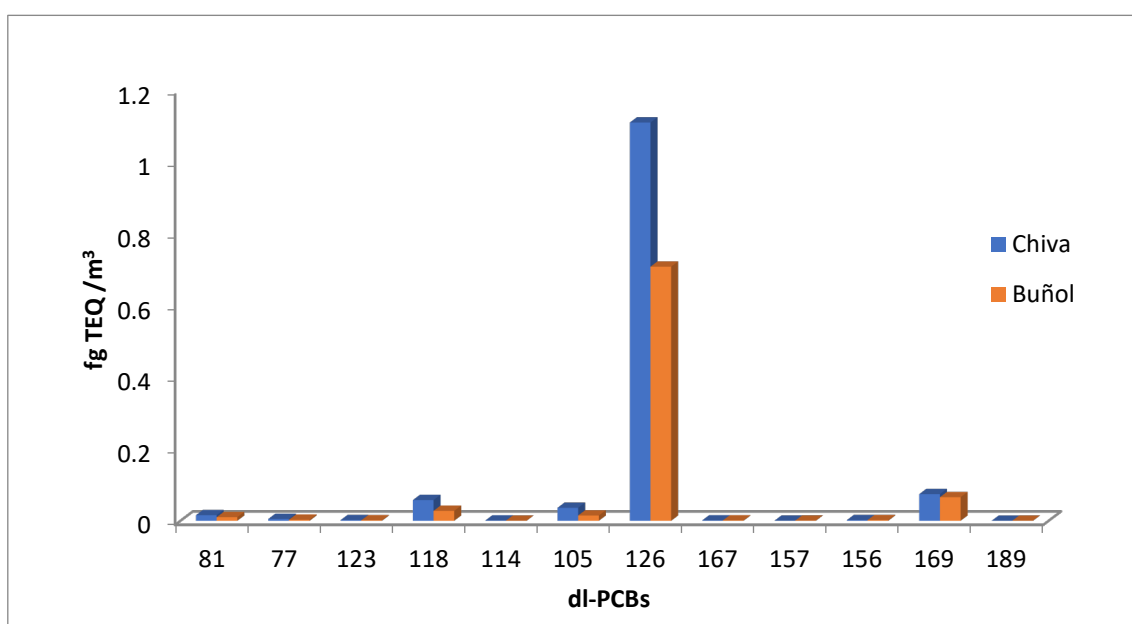
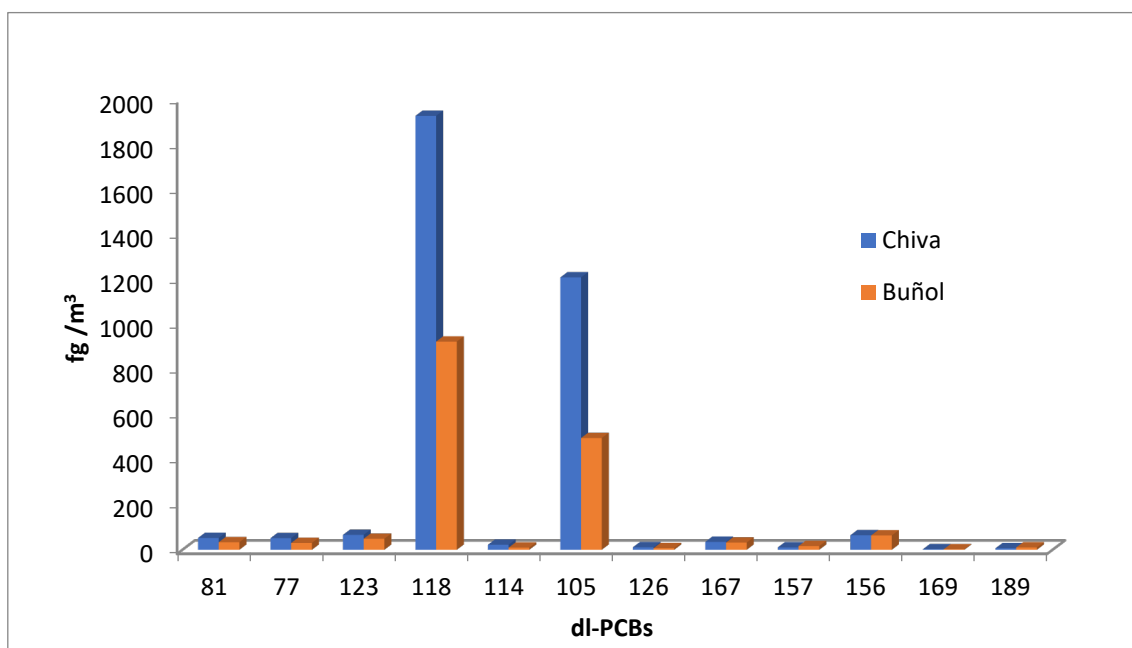


Figure S1. Profile of concentrations of dl-PCBs detected at Chiva and Buñol stations using concentrations (fg / m^3) and toxic equivalents (TEQ) ($\text{fg TEQ} / \text{m}^3$).

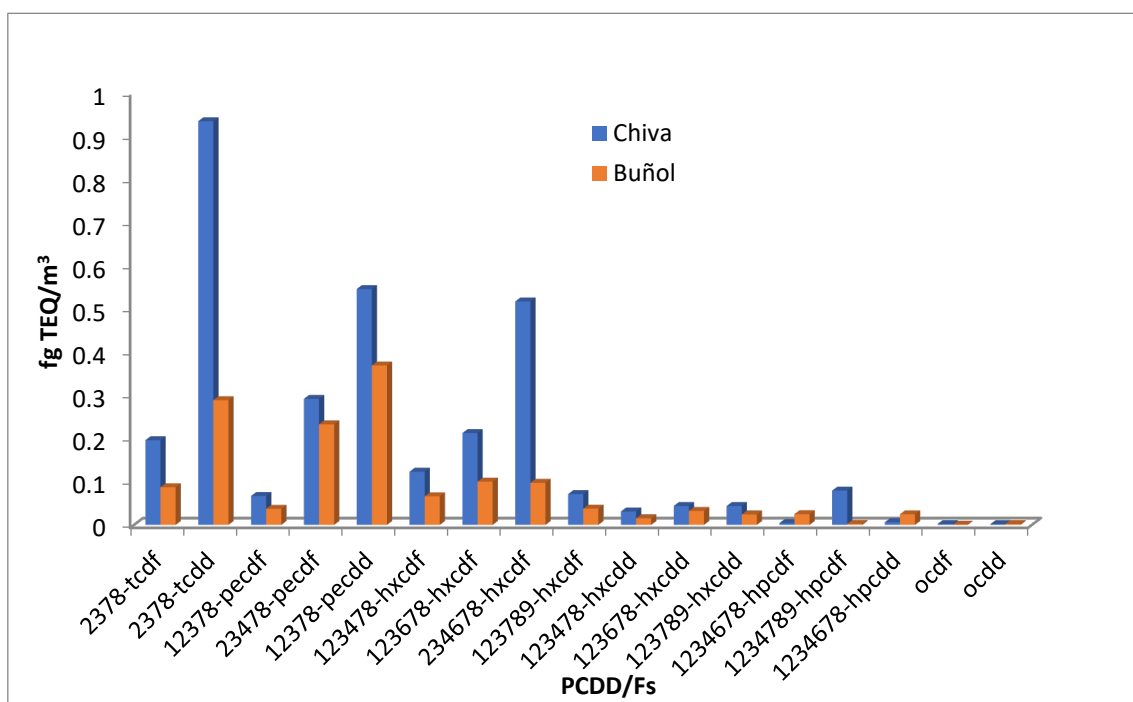
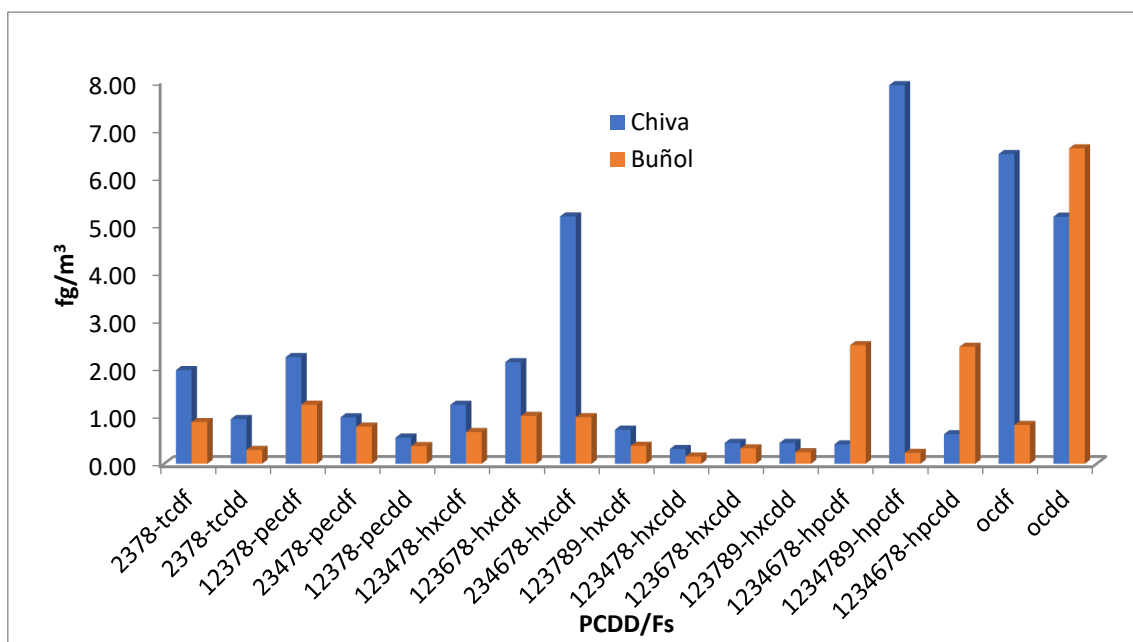


Figure S2. Profile of concentrations of PCDD/Fs detected at Chiva and Buñol stations using concentrations (fg / m³) and toxic equivalents (TEQ) (fg TEQ / m³).