polymers

MDPI

Supplementary Material

A win-win combination to inhibit persistent organic pollutant formation via the co-incineration of polyvinyl chloride e-waste and sewage sludge

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The SM contains 4 pages of additional information and includes three tables.

Table S1. Instrument conditions for the analysis of PCDD/Fs and dioxin-like PCBs by GC-MSMS.

GC conditions	
Column	Agilent DB-5 MS UI (60 m × 250 μm × 0.25 μm)
Injection volume	1 μL
Injector temperature	300 ºC
Injection mode	Splitless
Oven program for PCDD/Fs	Initial: 80 °C (2 minutes) Ramp at 60 °C/min to 140 °C (no hold) Ramp at 20 °C/min to 200 °C (1 minute) Ramp at 3 °C/min to 300 °C (7 minutes)
Oven program for dl-PCBs	Initial: 90 °C (1 minute) Ramp at 20 °C/min to 180 °C (1 minute) Ramp at 3 °C/min to 285 °C (no hold)
He (carrier gas) flow	1 mL/min
MS conditions	
Operation mode	Electron ionization (EI) Multiple Reaction Monitoring (MRM)
Ionization voltage	70 eV
Transfer line temperature	290 ºC
Source temperature	280 ºC
Quadrupole temperature	150 ºC
MS resolution	Unit
He (quench gas) flow	2.25 mL/min
N_2 (collision gas) flow	1.5 mL/min

Table S2. MSMS parameters and collision energy for the analysis of native and ^{13}C-labelled PCDD/Fs.

Time segment	Analyte	Precursor ion (m/z)	Product ion (m/z)	Dwell (ms)	Collision energy (eV)
1 TCDD/F	TCDF	303.9	240.9	100	40
		305.9	242.9	100	40
	^{13}C-TCDF	315.9	251.9	20	40
		317.9	253.9	20	40
	TCDD	319.9	256.9	100	26
		321.9	258.9	100	26
	^{37}Cl-TCDD	327.9	198	20	40
		327.9	263	20	26
	^{13}C-TCDD	331.9	267.9	20	26
		333.9	269.9	20	26
2 PeCDD/F	PeCDF	337.9	274.9	100	40
		339.9	276.9	100	40
	^{13}C-PeCDF	349.9	285.9	20	40
		351.9	287.9	20	40
	PCDD	353.9	290.9	100	26
		355.9	292.9	100	26
	^{13}C-PeCDD	365.9	301.9	20	26
		367.9	303.9	20	26
3 HxCDD/F	HxCDF	373.8	310.9	100	40
		375.8	312.9	100	40
	^{13}C-HxCDF	385.8	321.9	20	40
		387.8	323.9	20	40
	HxCDD	389.8	326.9	100	26
		391.8	328.8	100	25
	^{13}C-HxCDD	401.8	337.9	20	26
		403.8	339.8	20	26
4 HpCDD/F	HpCDF	407.8	344.8	100	40
		409.8	346.8	100	40
	^{13}C-HpCDF	419.8	355.8	20	40
		421.8	357.8	20	40
	HpCDD	423.8	360.8	100	24
		425.8	362.8	100	24
	^{13}C-HpCDD	435.8	371.8	20	26
		437.8	373.8	20	24
5 OCDD/F	OCDF	441.7	378.8	150	40
		443.7	380.8	150	40
	OCDD	457.7	394.8	150	24
		459.7	396.8	150	24
	^{13}C-OCDD	469.7	405.8	20	24
		471.7	407.8	20	24

Table S3. MSMS parameters and collision energy for the analysis of native and ^{13}C-labelled dioxin-like PCBs.

Time segment	Analyte	Precursor ion (m/z)	Product ion (m/z)	Dwell (ms)	Collision energy (eV)
1 tetra- and penta-PCBs	tetra-PCB	289.9	219.9	200	25
		291.9	221.9	200	25
	^{13}C-tetra-PCB	301.9	232	20	25
		303.9	234	20	25
	^{13}C-penta-PCB	335.9	265.9	20	30
		337.9	267.9	20	30
2 penta- and hexa-PCBs	penta-PCB	323.9	253.9	200	30
		325.9	255.9	200	30
	^{13}C-penta-PCB	335.9	265.9	20	30
		337.9	267.9	20	30
	^{13}C-hexa-PCB	369.9	299.9	20	30
		371.9	301.9	20	30
3 hexa- and hepta-PCBs	hexa-PCB	357.8	287.9	100	30
		359.8	289.9	100	30
	^{13}C-hexa-PCB	369.9	299.9	20	30
		371.9	301.9	20	30
	hepta-PCB	393.8	323.9	100	30
		395.8	325.9	100	30
	^{13}C-hepta-PCB	405.8	335.8	20	30
		407.8	337.8	20	30

L: labelled