# Supporting information

## A Quasi Real-Time Evaluation of High-Resolution Mass Spectra of Complex Chlorinated Paraffins Mixtures and their Transformation Products

Oscar Mendo Diaz *[a, b], Luc Patiny [c], Adriana Tell [a, d], Jules Hutter [a], Marco Knobloch [e], Urs Stalder [b], Susanne Kern [d], Laurent Bigler [b], Norbert Heeb [a], Davide Bleiner [a, b]

[a] Empa Materials Science and Technology, Überlandstrasse 129, Dübendorf, CH 8600

[b] UZH, Winterthurerstrasse 190, Zürich, CH 8057

[c] Zakodium Sàrl, Route d'Echandens 6b, Lonay, CH 1027

[d] ZHAW Zürcher Hochschule für Angewandte Wissenschaften Departement Life Sciences und Facility Management

Einsiedlerstrasse 31, Wadenswil, CH 8820

[e] Suisse Office fédéral de la sécurité alimentaire et des affaires vétérinaires, Bern, CH 3003

*Email: oscar.mendodiaz@empa.ch

***Corresponding author:**

Oscar Mendo Diaz

Email: oscar.mendodiaz@empa.ch

Überlandstrasse 129, 8600 Dübendorf, Switzerland

**ORCID**

Oscar Mendo Diaz: 0000-0003-2469-269X

Supporting information contains schematic representations of methods explained in the experimental section, , total and extracted ion chromatograms of samples P1, P2 and P3, reconstructed mass spectra of samples P1, P2 and P3, carbon- and chlorine-homologue distributions of samples P2 and P3 and fingerprint patterns of P1, P2 and P3. Sample P1 was evaluated by CP-Hunter and RASER. Supporting tables corresponding to the figures are provided as well.

# Table of Content

# Supporting figures

**Figure S1.** Workflow of the R-based automatic spectra evaluation routine (RASER) used in the mass spectrometric data evaluation.[1]

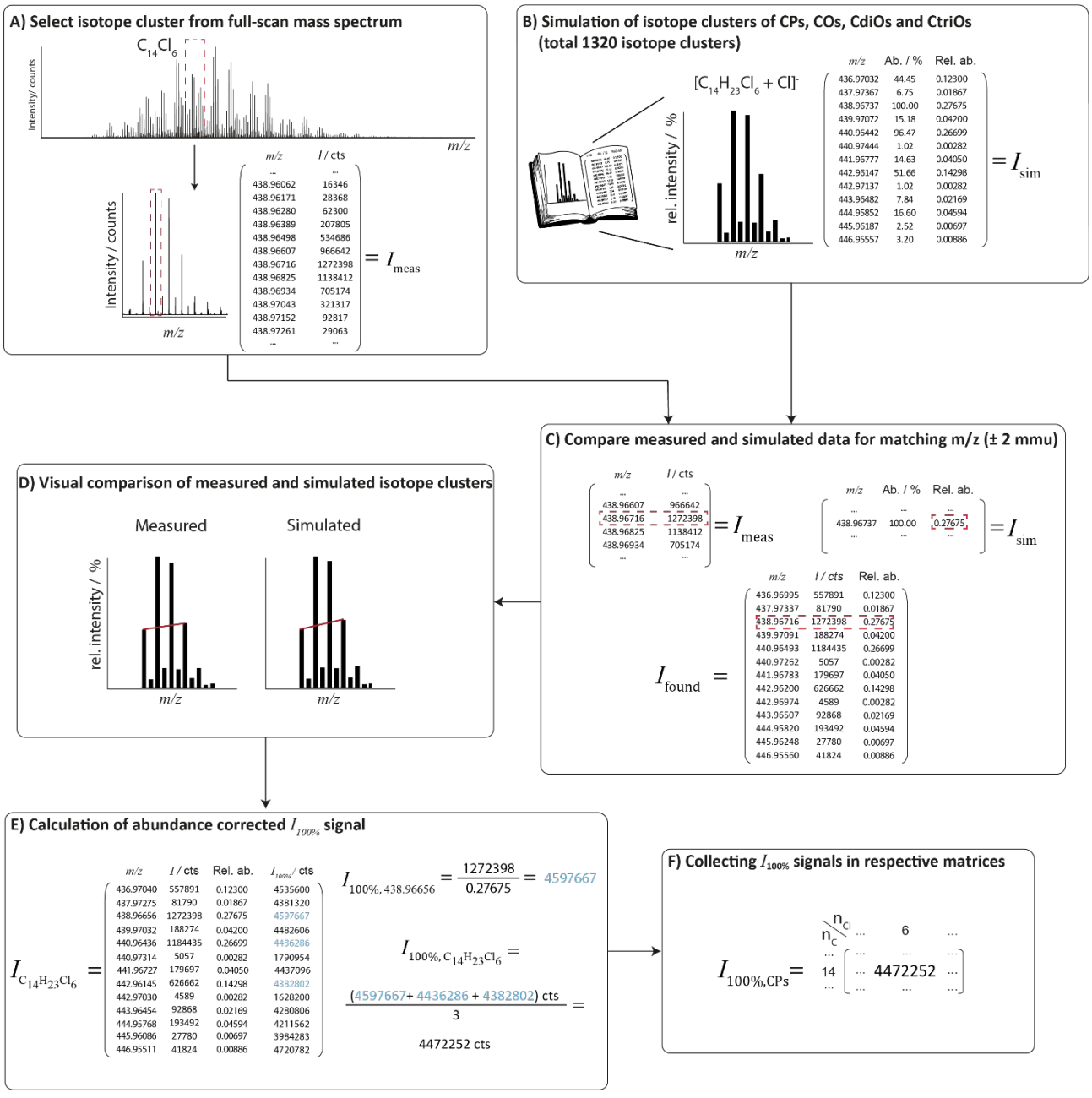


**Figure S2.** Workflow of the fingerprinting method of CPs, COs, CdiOs and CtriOs.[2]

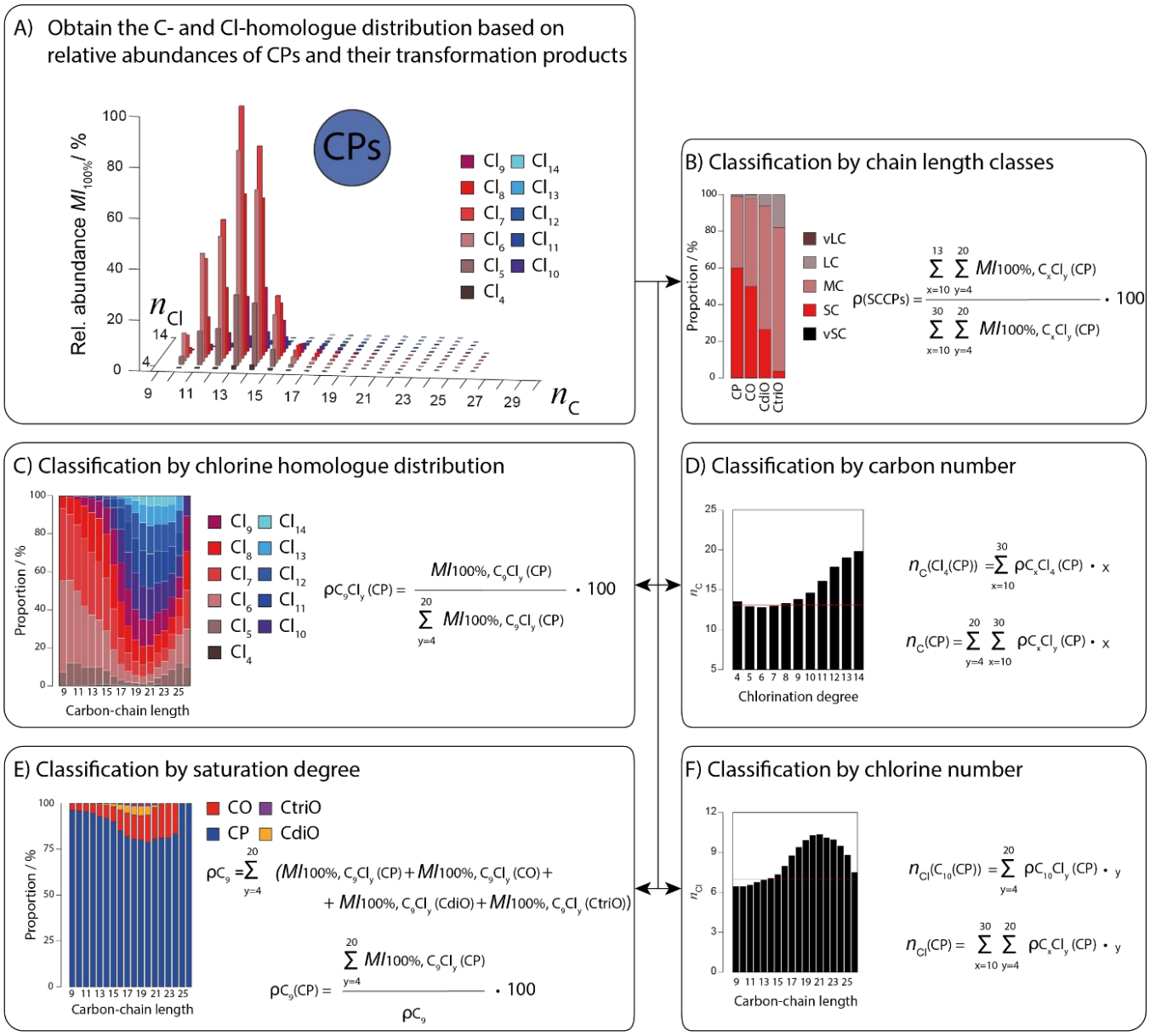


**Figure S3**. Total ion chromatogram (TIC, top), extracted ion chromatograms of $C_nCl_6$-homologues (EIC, middle) and extracted ion chromatograms of $C_{26}Cl_x$-homologues and internal standard $^{[13]}C_{10}H_{16}Cl_6$ (EIC, bottom) of chlorinated paraffins of the sewage sludge (P1). Zoom factor of the EIC of the internal standard is indicated.

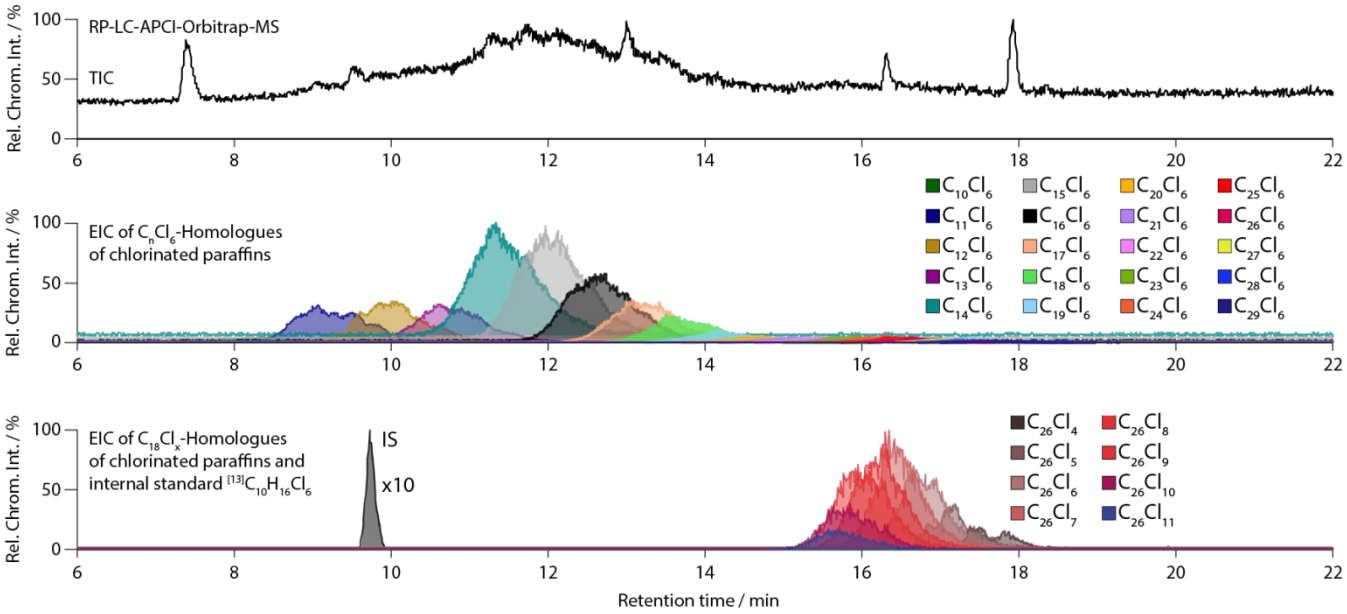


**Figure S4**. Total ion chromatogram (TIC, top), extracted ion chromatograms of $C_nCl_6$-homologues (EIC, middle) and extracted ion chromatograms of $C_{16}Cl_x$-homologues and internal standard $^{[13]}C_{10}H_{16}Cl_6$ (EIC, bottom) of chlorinated paraffins of the yoga mat (P2). Zoom factor of the EIC of the internal standard is indicated.

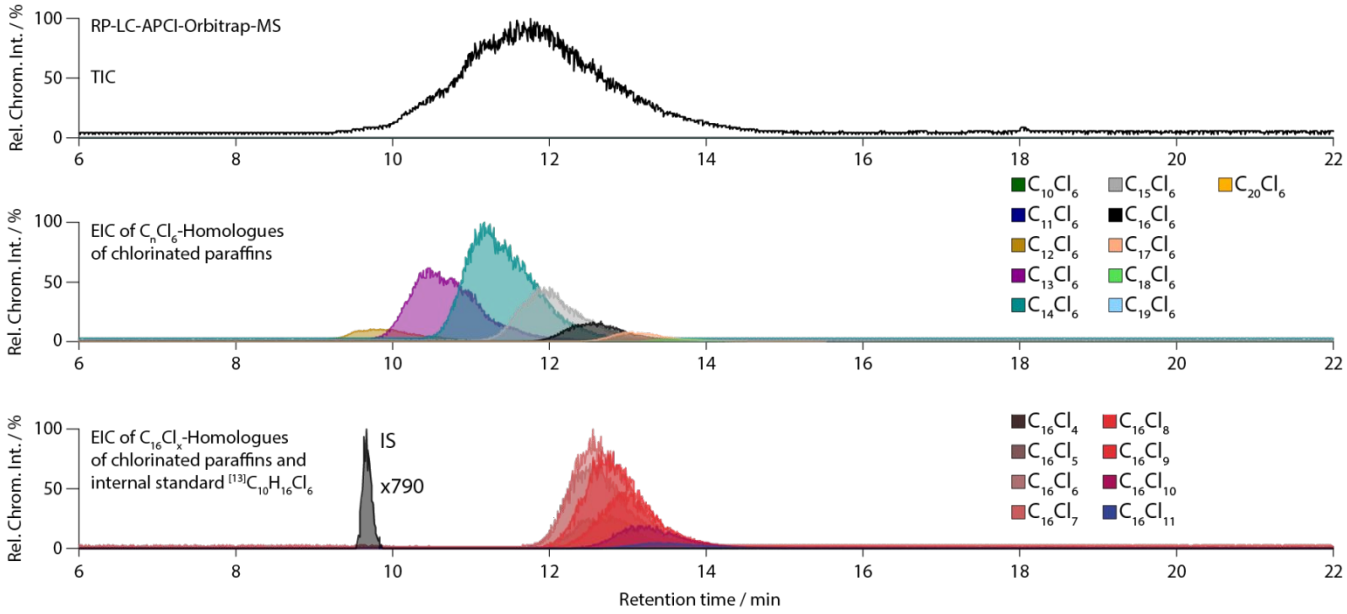


**Figure S5**. Total ion chromatogram (TIC, top), extracted ion chromatograms of $C_nCl_6$-homologues (EIC, middle) and extracted ion chromatograms of $C_{13}Cl_x$-homologues and internal standard $^{[13]}C_{10}H_{16}Cl_6$ (EIC, bottom) of chlorinated paraffins of the coating of an electronic cable (P3). Zoom factor of the EIC of the internal standard is indicated.

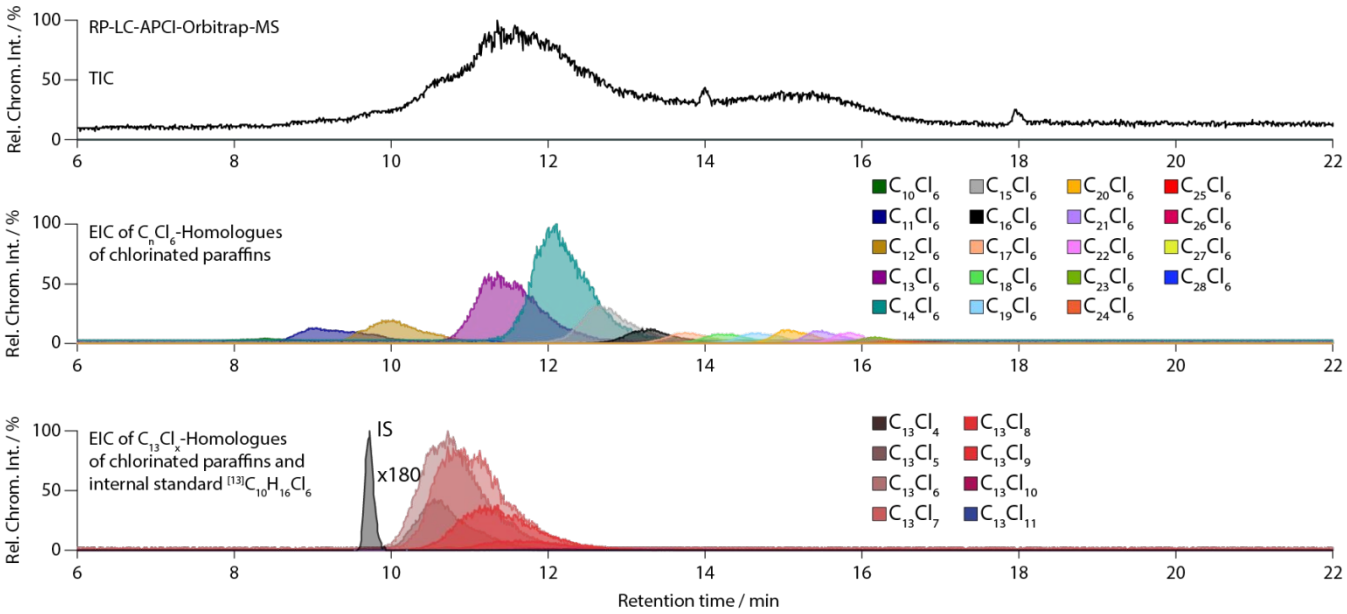


**Figure S6**. Measured full-scan (A) and reconstructed mass spectra (RMS) of the sewage sludge (P1). The RMS correspond to C- and Cl-homologues of CPs (B), COs (C), CdiOs (D) and CtriOs (E) compound classes. Number of homologues searched for and found together with the zoom factors based on the most abundant homologue and percentage of MS signals assigned are depicted. Respective data are given in Table S1.

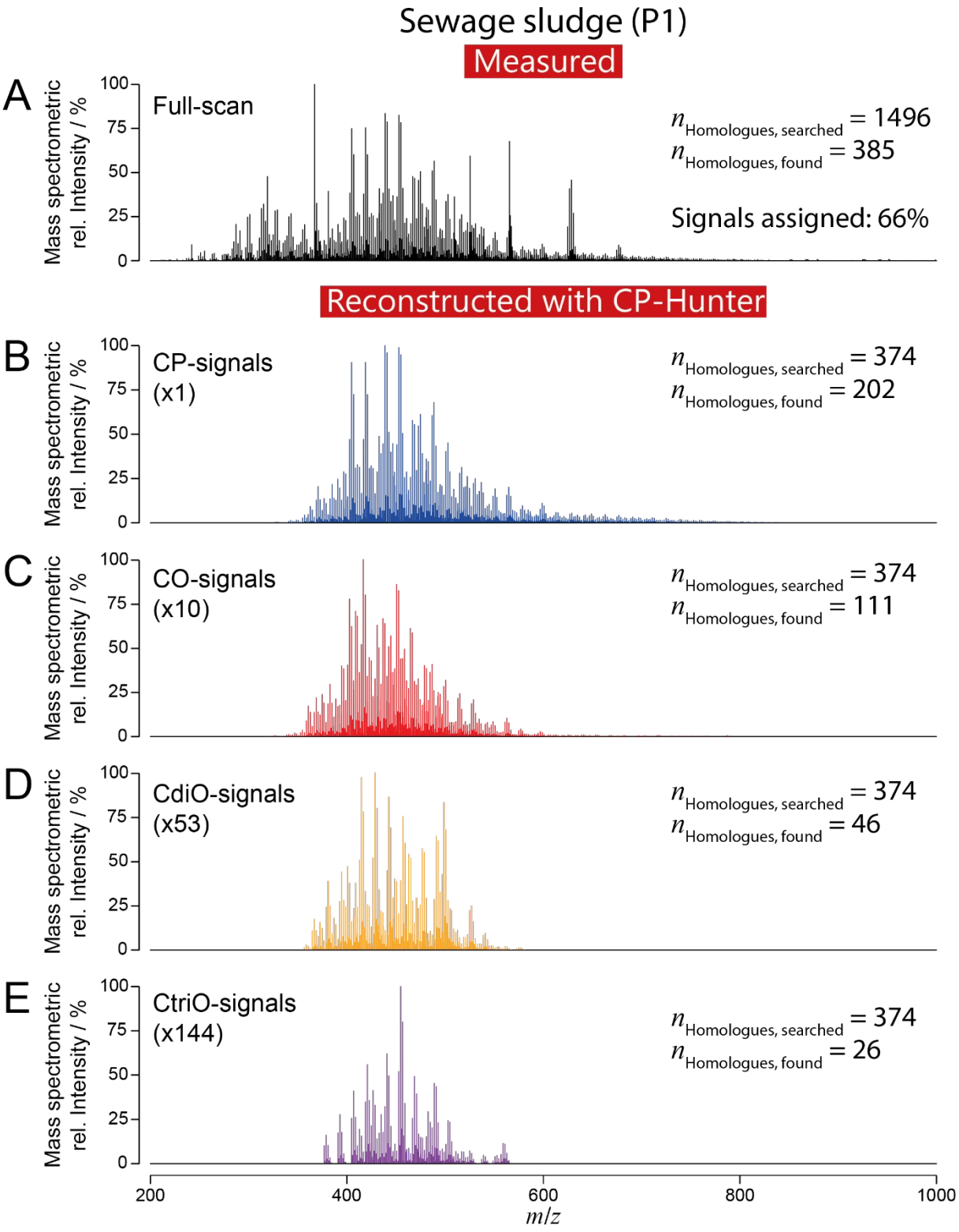


**Figure S7**. Measured full-scan (A) and reconstructed mass spectra (RMS) of the yoga mat (P2). The RMS correspond to C- and Cl-homologues of CPs (B), COs (C), CdiOs (D) and CtriOs (E) compound classes. Number of homologues searched for and found together with the zoom factors based on the most abundant homologue and percentage of MS signals assigned are depicted. Respective data are given in Table S1.

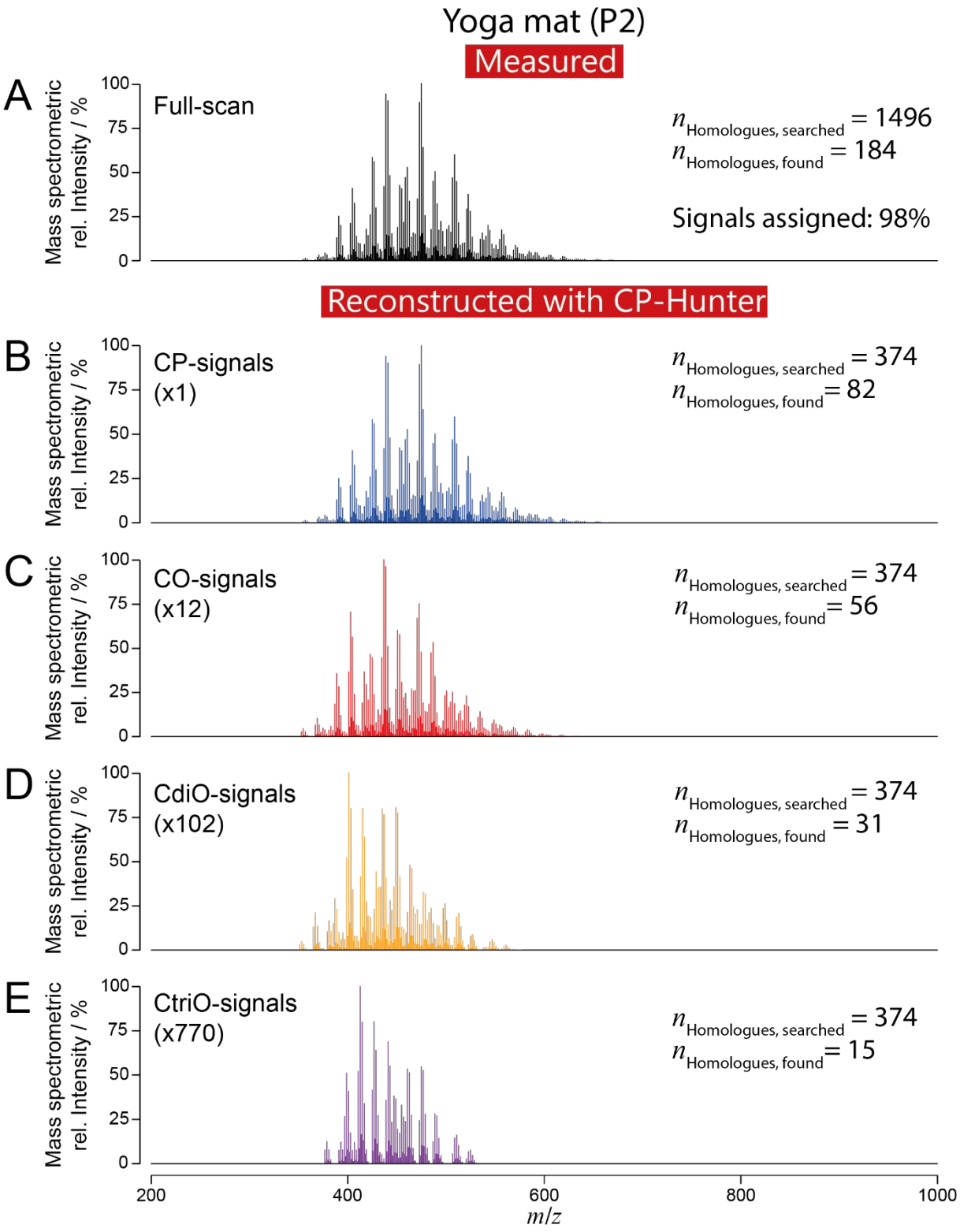


**Figure S8**. Measured full-scan (A) and reconstructed mass spectra (RMS) of the coating of an electronic cable (P3). The RMS correspond to C- and Cl-homologues of CPs (B), COs (C), CdiOs (D) and CtriOs (E) compound classes. Number of homologues searched for and found together with the zoom factors based on the most abundant homologue and percentage of MS signals assigned are depicted. Respective data are given in Table S1.

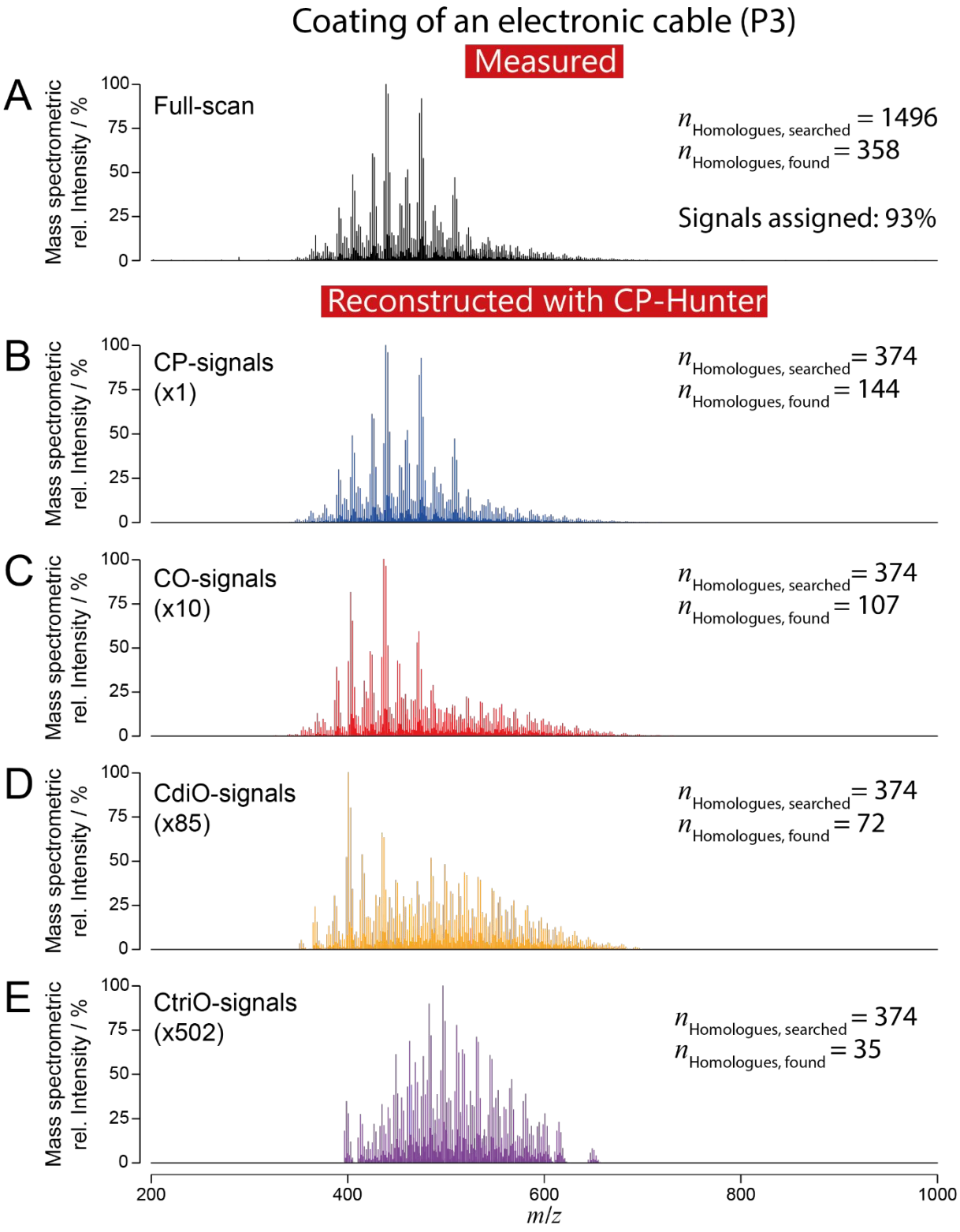


**Figure S9.** Carbon- and chlorine-homologue distributions of CPs (A), COs (B), CdiOs (C) and CtriOs (D) compound classes of P2 and P3. Data were extracted and evaluated by CP-Hunter. Most abundant homologues (MAH, 100%) and proportions per carbon-chain length class are depicted. Respective data are given in Tables S3 and S4.

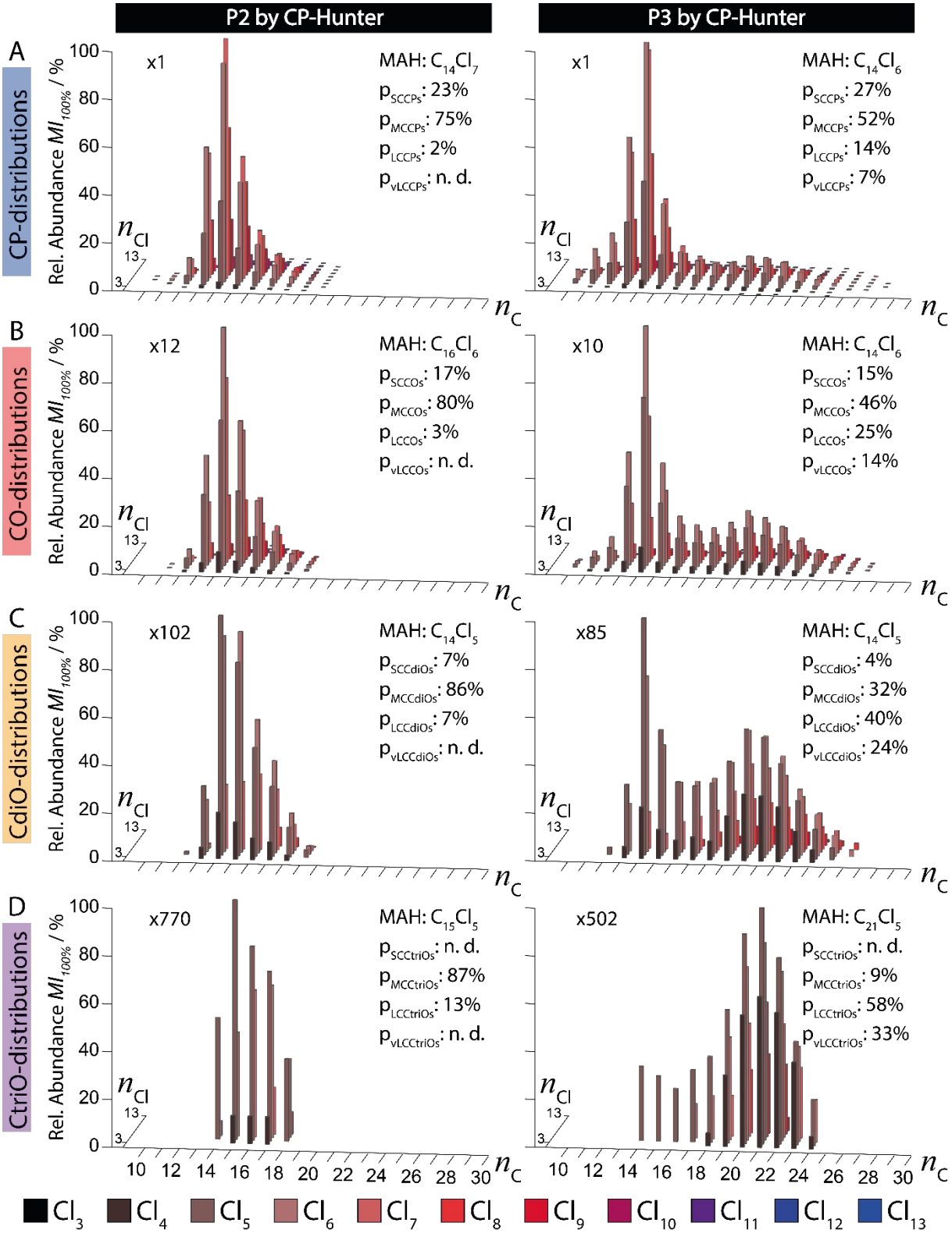


**Figure S10**. Fingerprint of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes in the sewage sludge (P1). Data were extracted and evaluated by CP-Hunter (top) and RASER (bottom). Plots corresponding to the classification by different carbon-chain length classes (A1 and A2), by saturation degree (B1 and B2), by chlorination degree (C1 and C2), by mean chlorine ($n_{Cl}$, D1 and D2) and by mean carbon ($n_C$, E1 and E2) numbers are shown. Weighted mean chlorine and carbon numbers (red lines) are indicated. Respective data are given in Tables S6, S7, S9, S10, S13 and S15.

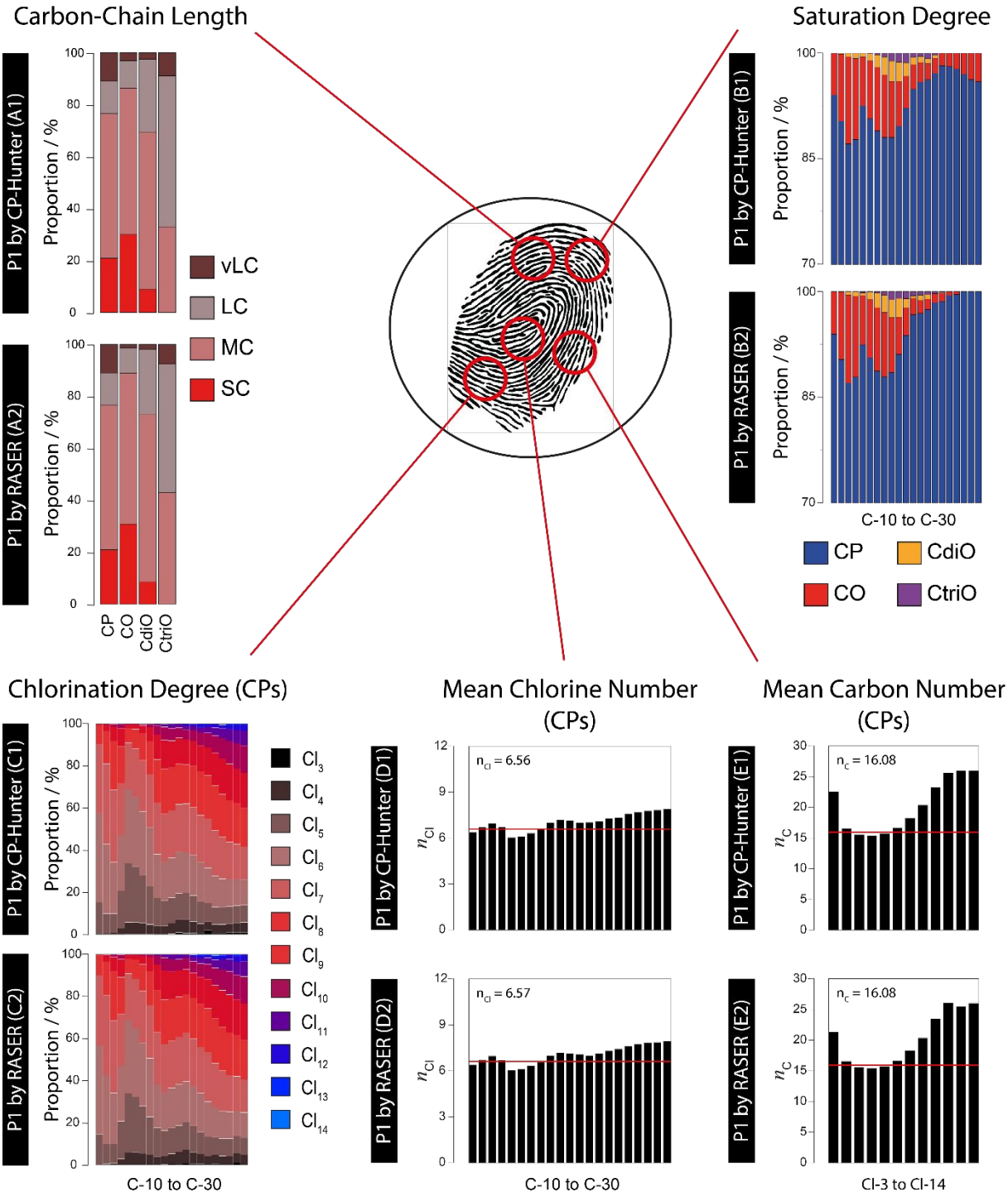
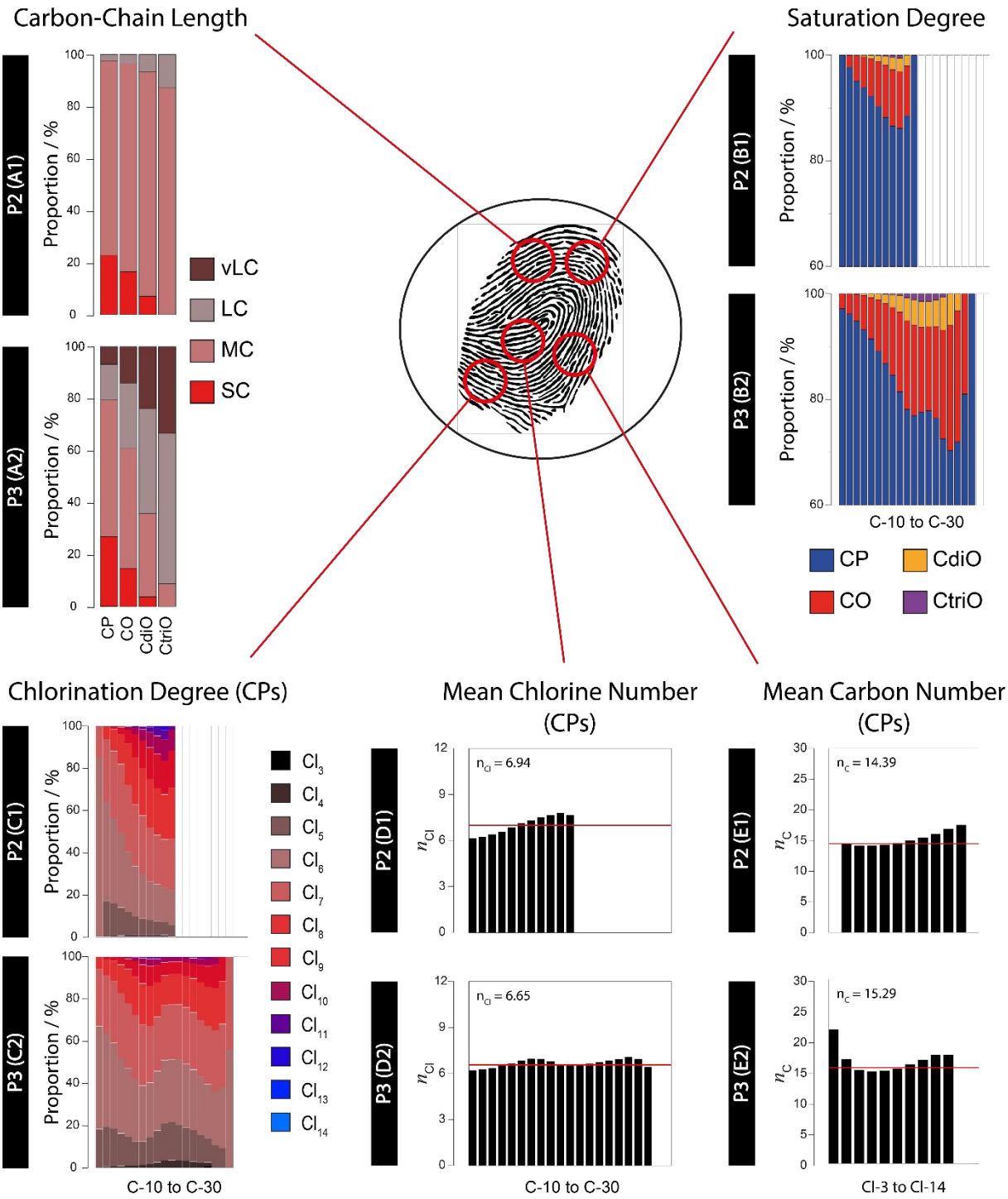


**Figure S11**. Fingerprints of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes in the yoga mat (P2, top) and coating of an electronic cable (P3, bottom). Data were extracted and evaluated by CP-Hunter. Plots corresponding to the classification by different carbon-chain length classes (A1 and A2), by saturation degree (B1 and B2), by chlorination degree (C1 and C2), by mean chlorine ($n_{Cl}$, D1 and D2) and by mean carbon ($n_C$, E1 and E2) numbers are shown. Weighted mean chlorine and carbon numbers (red lines) are indicated. Respective data are given in Tables S6, S8, S11, S12, S14, and S16.



# Supporting tables

**Table S1**. Number of ions and homologues searched for and detected in P1, P2 and P3. Respective mass spectrum of P1 was evaluated by CP-Hunter and RASER, whereas the ones of P2 and P3 were evaluated by CP-Hunter. Proportion of ions assigned from the mass spectrum are indicated.

| Name | Code | Evaluated by | Item | CP | CO | CdiO | CtriO | Total |
|---|---|---|---|---|---|---|---|---|
| | | | Ions searched for | 5126 | 5126 | 5126 | 5126 | 20504 |
| | | | Homologues search for | 374 | 374 | 374 | 374 | 1496 |
| Sewage sludge | P1 | CP-Hunter | Ions found | 2434 | 1260 | 477 | 257 | 4428 |
| | | | Homologues found | 202 | 111 | 46 | 26 | 385 |
| | | | Proportion ions assigned | | | | | 66% |
| Sewage sludge | P1 | RASER | Ions found | 2282 | 792 | 287 | 233 | 3594 |
| | | | Homologues found | 188 | 73 | 29 | 24 | 314 |
| | | | Proportion ions assigned | | | | | - |
| Yoga mat | P2 | CP-Hunter | Ions found | 1017 | 659 | 334 | 156 | 2166 |
| | | | Homologues found | 82 | 56 | 31 | 15 | 184 |
| | | | Proportion ions assigned | | | | | 98% |
| Coating of an electronic cable | P3 | CP-Hunter | Ions found | 1718 | 1241 | 809 | 373 | 4141 |
| | | | Homologues found | 144 | 107 | 72 | 35 | 358 |
| | | | Proportion ions assigned | | | | | 93% |

**Table S2.** Normalized proportions (%) of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes of P1. Data were extracted and evaluated by CP-Hunter. Abundances are given relative to the intensity (cts) of the most abundant homologue (MAH). Homologues with an $MI_{100\%}$ below the limit of detection (LOD) of 100 cts were considered undetected (-). Weighted mean carbon- ($n_C$), hydrogen- ($n_H$) and chlorine- ($n_{Cl}$) numbers are provided per class of compound. Mean chlorine ($n_{Cl}$) and carbon ($n_C$) numbers are also presented per carbon-chain length and per chlorination degree, respectively. Proportions of very short- (ρ vSC-) short- (ρ SC-), medium- (ρ MC-), long- (ρ LC-) and very long-chain (ρ vLC-) material are depicted.

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{14}Cl_6$ 3.70E+05 cts **LOD:** 100 cts **n (C)** 16.08 **n (H)** 27.61 **n (Cl)** 6.56

p vSC - % p SC 20.93 % p MC 55.58 % p LC 12.49 % p vLC 11.01 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | 0.06 | 1.43 | 4.12 | 3.20 | 0.88 | 0.06 | - | - | - | - | - | - | - | - | - | C-10 | 6.37 |
| C-11 | - | 0.45 | 7.98 | 27.99 | 32.24 | 13.15 | 2.69 | 0.30 | - | - | - | - | - | - | - | - | C-11 | 6.69 |
| C-12 | - | 1.11 | 11.89 | 32.09 | 45.14 | 30.27 | 9.09 | 1.62 | 0.14 | - | - | - | - | - | - | - | C-12 | 6.96 |
| C-13 | - | 3.56 | 21.56 | 31.79 | 29.38 | 21.18 | 10.30 | 2.49 | 0.27 | - | - | - | - | - | - | - | C-13 | 6.71 |
| C-14 | 0.08 | 16.60 | 79.98 | **100** | 63.11 | 20.09 | 4.89 | 1.04 | 0.07 | - | - | - | - | - | - | - | C-14 | 6.03 |
| C-15 | 0.17 | 17.78 | 80.81 | 99.91 | 70.83 | 28.08 | 6.67 | 1.19 | - | - | - | - | - | - | - | - | C-15 | 6.11 |
| C-16 | 0.14 | 10.48 | 44.15 | 59.21 | 47.60 | 24.74 | 7.61 | 1.50 | 0.15 | - | - | - | - | - | - | - | C-16 | 6.31 |
| C-17 | 0.10 | 6.32 | 23.99 | 37.31 | 33.45 | 21.13 | 8.57 | 2.04 | 0.29 | - | - | - | - | - | - | - | C-17 | 6.56 |
| C-18 | 0.11 | 4.29 | 14.68 | 22.63 | 27.02 | 22.30 | 13.05 | 4.69 | 0.85 | - | - | - | - | - | - | - | C-18 | 7.01 |
| C-19 | 0.08 | 2.07 | 6.16 | 9.60 | 11.59 | 10.84 | 7.10 | 3.14 | 0.75 | 0.05 | - | - | - | - | - | - | C-19 | 7.18 |
| C-20 | 0.08 | 1.28 | 3.13 | 4.86 | 5.75 | 5.24 | 3.28 | 1.51 | 0.50 | 0.07 | - | - | - | - | - | - | C-20 | 7.13 |
| C-21 | 0.20 | 1.21 | 2.50 | 3.92 | 4.51 | 3.86 | 2.47 | 0.95 | 0.30 | 0.07 | - | - | - | - | - | - | C-21 | 6.99 |
| C-22 | 0.15 | 1.48 | 2.91 | 4.39 | 5.30 | 4.23 | 2.71 | 1.07 | 0.42 | 0.24 | - | - | - | - | - | - | C-22 | 7.02 |
| C-23 | 0.17 | 1.45 | 3.27 | 5.04 | 6.00 | 5.17 | 3.11 | 1.33 | 0.56 | 0.19 | 0.06 | - | - | - | - | - | C-23 | 7.09 |
| C-24 | 0.18 | 1.32 | 3.07 | 5.42 | 6.56 | 6.06 | 3.58 | 1.80 | 0.74 | 0.28 | 0.20 | - | - | - | - | - | C-24 | 7.27 |
| C-25 | 0.55 | 1.13 | 2.46 | 4.60 | 6.51 | 5.64 | 3.67 | 1.92 | 0.80 | 0.31 | 0.09 | - | - | - | - | - | C-25 | 7.32 |
| C-26 | 0.15 | 1.02 | 2.03 | 3.61 | 5.30 | 5.22 | 3.77 | 2.03 | 0.91 | 0.36 | 0.11 | 0.11 | - | - | - | - | C-26 | 7.58 |
| C-27 | 0.11 | 0.81 | 1.58 | 2.55 | 3.79 | 3.88 | 3.23 | 1.86 | 0.88 | 0.33 | 0.10 | - | - | - | - | - | C-27 | 7.68 |
| C-28 | 0.14 | 0.60 | 1.20 | 1.88 | 2.56 | 2.87 | 2.51 | 1.58 | 0.81 | 0.30 | 0.08 | - | - | - | - | - | C-28 | 7.77 |
| C-29 | 0.11 | 0.47 | 0.86 | 1.34 | 1.75 | 2.03 | 1.77 | 1.27 | 0.65 | 0.26 | 0.07 | - | - | - | - | - | C-29 | 7.83 |
| C-30 | 0.08 | 0.35 | 0.60 | 0.89 | 1.13 | 1.33 | 1.22 | 0.94 | 0.51 | 0.20 | 0.05 | - | - | - | - | - | C-30 | 7.89 |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | | |
| $n_C$ | 22.53 | 16.55 | 15.54 | 15.41 | 15.69 | 16.63 | 18.24 | 20.37 | 23.28 | 25.61 | 26.00 | 26.00 | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{15}Cl_5$ 3.61E+04 cts **LOD:** 100 cts **n (C)** 15.01 **n (H)** 23.95 **n (Cl)** 6.06

p vSC - % p SC 30.05 % p MC 56.27 % p LC 10.62 % p vLC 3.07 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | 2.09 | 3.28 | 0.93 | - | - | - | - | - | - | - | - | - | - | - | C-10 | 5.82 |
| C-11 | - | 0.68 | 16.63 | 43.33 | 25.47 | 5.48 | - | - | - | - | - | - | - | - | - | - | C-11 | 6.20 |
| C-12 | - | 1.30 | 23.15 | 77.59 | 64.27 | 22.30 | 2.68 | - | - | - | - | - | - | - | - | - | C-12 | 6.48 |
| C-13 | - | 3.40 | 20.98 | 49.51 | 56.44 | 26.52 | 5.11 | - | - | - | - | - | - | - | - | - | C-13 | 6.60 |
| C-14 | - | 19.87 | 76.85 | 74.59 | 37.90 | 9.62 | 0.94 | - | - | - | - | - | - | - | - | - | C-14 | 5.74 |
| C-15 | - | 27.10 | 100.00 | 97.24 | 47.57 | 10.51 | 1.21 | - | - | - | - | - | - | - | - | - | C-15 | 5.71 |
| C-16 | - | 18.54 | 63.56 | 69.93 | 37.60 | 12.13 | 1.63 | - | - | - | - | - | - | - | - | - | C-16 | 5.83 |
| C-17 | - | 12.88 | 37.27 | 46.50 | 29.06 | 10.42 | 1.96 | - | - | - | - | - | - | - | - | - | C-17 | 5.95 |
| C-18 | - | 7.78 | 21.93 | 29.33 | 25.23 | 13.18 | 3.99 | - | - | - | - | - | - | - | - | - | C-18 | 6.26 |
| C-19 | - | 2.97 | 7.88 | 9.80 | 9.81 | 5.59 | 1.33 | - | - | - | - | - | - | - | - | - | C-19 | 6.30 |
| C-20 | - | 1.25 | 2.86 | 3.56 | 3.10 | 1.76 | 0.51 | - | - | - | - | - | - | - | - | - | C-20 | 6.21 |
| C-21 | - | 0.92 | 1.66 | 2.22 | 1.77 | 0.95 | - | - | - | - | - | - | - | - | - | - | C-21 | 6.02 |
| C-22 | - | 0.92 | 1.44 | 2.09 | 1.77 | 0.60 | - | - | - | - | - | - | - | - | - | - | C-22 | 5.95 |
| C-23 | - | 0.66 | 1.41 | 1.95 | 1.68 | 0.66 | - | - | - | - | - | - | - | - | - | - | C-23 | 6.04 |
| C-24 | - | 0.66 | 1.28 | 2.22 | 1.59 | 0.84 | - | - | - | - | - | - | - | - | - | - | C-24 | 6.10 |
| C-25 | - | 0.43 | 1.08 | 1.69 | 1.36 | 0.50 | - | - | - | - | - | - | - | - | - | - | C-25 | 6.08 |
| C-26 | - | - | 0.91 | 1.51 | 1.53 | 0.46 | 0.47 | - | - | - | - | - | - | - | - | - | C-26 | 6.60 |
| C-27 | - | - | 0.78 | 1.13 | 1.41 | 0.44 | 0.70 | - | - | - | - | - | - | - | - | - | C-27 | 6.81 |
| C-28 | - | - | 0.55 | 1.10 | 1.14 | 0.92 | 0.84 | - | - | - | - | - | - | - | - | - | C-28 | 7.09 |
| C-29 | - | - | 0.36 | 0.84 | 1.05 | 1.18 | 0.76 | - | - | - | - | - | - | - | - | - | C-29 | 7.27 |
| C-30 | - | - | - | 0.54 | 0.86 | 0.85 | 0.89 | - | - | - | - | - | - | - | - | - | C-30 | 7.67 |
| | **Cl-19** | **Cl-20** | **Cl-21** | **Cl-22** | **Cl-23** | **Cl-24** | **Cl-25** | **Cl-26** | **Cl-27** | **Cl-28** | **Cl-29** | **Cl-30** | **Cl-31** | **Cl-32** | **Cl-33** | **Cl-34** | | |
| $n_C$ | - | 15.81 | 15.18 | 14.72 | 14.76 | 15.25 | 17.38 | - | - | - | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{16}Cl_5$ 7.05E+03 cts **LOD:** 100 cts **n (C)** 16.44 **n (H)** 25.56 **n (Cl)** 5.32

p vSC - % p SC 8.90 % p MC 60.61 % p LC 27.95 % p vLC 2.54 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** | - |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** | - |
| **C-11** | - | - | 2.66 | 3.77 | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** | 5.59 |
| **C-12** | - | - | 14.92 | 20.68 | 2.28 | - | - | - | - | - | - | - | - | - | - | - | **C-12** | 5.67 |
| **C-13** | - | - | 17.56 | 28.25 | 8.29 | - | - | - | - | - | - | - | - | - | - | - | **C-13** | 5.83 |
| **C-14** | - | 15.66 | 46.22 | 24.44 | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** | 5.10 |
| **C-15** | - | 35.05 | 96.35 | 45.06 | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** | 5.06 |
| **C-16** | - | 39.98 | **100** | 61.23 | 5.19 | - | - | - | - | - | - | - | - | - | - | - | **C-16** | 5.15 |
| **C-17** | - | 34.70 | 87.25 | 65.58 | 13.37 | - | - | - | - | - | - | - | - | - | - | - | **C-17** | 5.29 |
| **C-18** | - | 6.22 | 77.08 | 74.36 | 30.09 | - | - | - | - | - | - | - | - | - | - | - | **C-18** | 5.68 |
| **C-19** | - | 12.75 | 30.49 | 27.44 | 11.40 | - | - | - | - | - | - | - | - | - | - | - | **C-19** | 5.46 |
| **C-20** | - | 5.16 | 11.30 | 8.81 | 2.37 | - | - | - | - | - | - | - | - | - | - | - | **C-20** | 5.30 |
| **C-21** | - | 3.34 | 4.07 | 4.14 | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** | 5.07 |
| **C-22** | - | 2.69 | 4.91 | 3.07 | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** | 5.04 |
| **C-23** | - | 3.41 | 4.38 | 2.50 | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** | 4.91 |
| **C-24** | - | 2.42 | 2.99 | 1.71 | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** | 4.90 |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** | - |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** | - |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** | - |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** | - |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** | - |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** | - |

| | Cl-35 | Cl-36 | Cl-37 | Cl-38 | Cl-39 | Cl-40 | Cl-41 | Cl-42 | Cl-43 | Cl-44 | Cl-45 | Cl-46 | Cl-47 | Cl-48 | Cl-49 | Cl-50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 16.72 | 16.34 | 16.33 | 17.14 | - | - | - | - | - | - | - | - | - | - | - |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{18}Cl_5$ 2.57E+03 cts **LOD:** 100 cts **n (C)** 18.31 **n (H)** 27.72 **n (Cl)** 4.90

p vSC - % p SC - % p MC 33.00 % p LC 58.16 % p vLC 8.84 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** | - |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** | - |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** | - |
| **C-12** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** | - |
| **C-13** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** | - |
| **C-14** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** | - |
| **C-15** | - | 14.34 | 18.95 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** | 4.57 |
| **C-16** | - | 24.73 | 40.39 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** | 4.62 |
| **C-17** | - | 37.03 | 61.37 | 16.92 | - | - | - | - | - | - | - | - | - | - | - | - | **C-17** | 4.83 |
| **C-18** | - | 50.81 | **100** | 51.36 | - | - | - | - | - | - | - | - | - | - | - | - | **C-18** | 5.00 |
| **C-19** | - | 25.56 | 49.94 | 28.01 | - | - | - | - | - | - | - | - | - | - | - | - | **C-19** | 5.02 |
| **C-20** | - | 10.45 | 30.01 | 8.07 | 5.60 | - | - | - | - | - | - | - | - | - | - | - | **C-20** | 5.16 |
| **C-21** | - | 8.29 | 8.64 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** | 4.51 |
| **C-22** | - | 8.40 | 7.32 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** | 4.47 |
| **C-23** | - | 8.30 | 7.81 | 13.86 | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** | 5.19 |
| **C-24** | - | 6.32 | 5.27 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** | 4.45 |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** | - |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** | - |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** | - |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** | - |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** | - |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** | - |

| | Cl-51 | Cl-52 | Cl-53 | Cl-54 | Cl-55 | Cl-56 | Cl-57 | Cl-58 | Cl-59 | Cl-60 | Cl-61 | Cl-62 | Cl-63 | Cl-64 | Cl-65 | Cl-66 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 18.28 | 18.11 | 18.82 | 20.00 | - | - | - | - | - | - | - | - | - | - | - |

**Table S3.** Normalized proportions (%) of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes of P2. Data were evaluated by CP-Hunter. Abundances are given relative to the intensity (cts) of the most abundant homologue (MAH). Homologues with an $MI_{100\%}$ below the limit of detection (LOD) of 100 cts were considered undetected (-). Weighted mean carbon- ($n_C$), hydrogen- ($n_H$) and chlorine- ($n_{Cl}$) numbers are provided per class of compound. Mean chlorine ($n_{Cl}$) and carbon ($n_C$) numbers are also presented per carbon-chain length and per chlorination degree, respectively. Proportions of very short- (ρ vSC-) short- (ρ SC-), medium- (ρ MC-), long- (ρ LC-) and very long-chain (ρ vLC-) material are depicted.

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Yoga mat **Code:** P2

**Most Abundant Homologue:** $C_{14}Cl_7$ 7.29E+06 cts **LOD:** 100 cts **n (C)** 14.39 **n (H)** 23.84 **n (Cl)** 6.94

p vSC - % p SC 22.78 % p MC 74.82 % p LC 2.40 % p vLC - %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | 0.06 | 0.01 | - | - | - | - | - | - | - | - | - | - | - | C-10 | 6.15 |
| C-11 | - | - | 0.24 | 0.66 | 0.41 | 0.09 | - | - | - | - | - | - | - | - | - | - | C-11 | 6.25 |
| C-12 | - | 0.12 | 3.66 | 9.57 | 7.50 | 2.42 | 0.36 | - | - | - | - | - | - | - | - | - | C-12 | 6.40 |
| C-13 | - | 1.13 | 21.32 | 56.00 | 52.06 | 22.57 | 5.30 | 0.75 | - | - | - | - | - | - | - | - | C-13 | 6.58 |
| C-14 | - | 2.58 | 35.00 | 91.17 | **100** | 61.47 | 21.72 | 4.54 | 0.57 | 0.01 | - | - | - | - | - | - | C-14 | 6.85 |
| C-15 | - | 1.59 | 15.48 | 41.64 | 50.89 | 38.90 | 19.10 | 5.54 | 0.99 | 0.10 | - | - | - | - | - | - | C-15 | 7.12 |
| C-16 | - | 0.69 | 5.81 | 15.59 | 20.28 | 16.50 | 9.61 | 3.91 | 0.99 | 0.13 | - | - | - | - | - | - | C-16 | 7.31 |
| C-17 | - | 0.39 | 2.89 | 7.38 | 10.22 | 9.28 | 5.99 | 2.87 | 0.98 | 0.21 | 0.01 | - | - | - | - | - | C-17 | 7.51 |
| C-18 | - | 0.15 | 1.00 | 2.69 | 3.56 | 3.39 | 2.47 | 1.32 | 0.53 | 0.16 | 0.01 | - | - | - | - | - | C-18 | 7.67 |
| C-19 | - | 0.04 | 0.22 | 0.60 | 0.84 | 0.78 | 0.59 | 0.37 | 0.16 | 0.07 | - | - | - | - | - | - | C-19 | 7.79 |
| C-20 | - | - | 0.03 | 0.09 | 0.13 | 0.13 | 0.09 | 0.05 | 0.01 | - | - | - | - | - | - | - | C-20 | 7.68 |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 | - |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 | - |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 | - |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | - |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | - |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | - |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | |
| $n_C$ | - | 14.53 | 14.14 | 14.14 | 14.30 | 14.58 | 14.98 | 15.48 | 16.11 | 16.91 | 17.53 | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Yoga mat **Code:** P2

**Most Abundant Homologue:** $C_{14}Cl_6$ 6.33E+05 cts **LOD:** 100 cts **n (C)** 14.67 **n (H)** 22.96 **n (Cl)** 6.38

p vSC - % p SC 16.47 % p MC 80.11 % p LC 3.41 % p vLC - %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 | - |
| C-11 | - | - | 0.12 | 0.25 | - | - | - | - | - | - | - | - | - | - | - | - | C-11 | 5.67 |
| C-12 | - | 0.43 | 4.36 | 6.53 | 2.42 | 0.18 | - | - | - | - | - | - | - | - | - | - | C-12 | 5.82 |
| C-13 | - | 3.74 | 31.15 | 46.07 | 25.18 | 6.54 | 0.33 | - | - | - | - | - | - | - | - | - | C-13 | 6.01 |
| C-14 | - | 8.51 | 62.33 | **100** | 77.32 | 26.71 | 4.82 | 0.23 | - | - | - | - | - | - | - | - | C-14 | 6.24 |
| C-15 | - | 4.90 | 32.88 | 60.89 | 55.44 | 24.74 | 7.66 | 1.00 | - | - | - | - | - | - | - | - | C-15 | 6.48 |
| C-16 | - | 2.37 | 13.90 | 27.65 | 27.40 | 15.35 | 6.31 | 1.37 | 0.02 | 0.26 | - | - | - | - | - | - | C-16 | 6.69 |
| C-17 | - | 1.46 | 7.79 | 15.00 | 15.63 | 10.58 | 4.87 | 1.34 | 0.32 | - | - | - | - | - | - | - | C-17 | 6.84 |
| C-18 | - | 0.57 | 2.95 | 5.58 | 5.72 | 4.28 | 2.15 | 0.65 | - | - | - | - | - | - | - | - | C-18 | 6.88 |
| C-19 | - | - | 0.62 | 1.19 | 1.28 | 0.94 | 0.44 | - | - | - | - | - | - | - | - | - | C-19 | 6.86 |
| C-20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-20 | - |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 | - |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 | - |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 | - |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | - |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | - |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | - |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | Cl-19 | Cl-20 | Cl-21 | Cl-22 | Cl-23 | Cl-24 | Cl-25 | Cl-26 | Cl-27 | Cl-28 | Cl-29 | Cl-30 | Cl-31 | Cl-32 | Cl-33 | Cl-34 | | |
| $n_C$ | - | 14.53 | 14.38 | 14.49 | 14.74 | 15.14 | 15.71 | 16.25 | 16.93 | 16.00 | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Yoga mat **Code:** P2

**Most Abundant Homologue:** $C_{14}Cl_5$ 7.12E+04 cts **LOD:** 100 cts **n (C)** 15.21 **n (H)** 22.76 **n (Cl)** 5.67

p vSC - % p SC 7.15 % p MC 86.18 % p LC 6.68 % p vLC - %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 | - |
| C-11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 | - |
| C-12 | - | - | 1.16 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-12 | 5.00 |
| C-13 | - | 4.52 | 28.77 | 21.67 | 2.00 | - | - | - | - | - | - | - | - | - | - | - | C-13 | 5.37 |
| C-14 | - | 19.30 | **100** | 90.25 | 26.59 | - | - | - | - | - | - | - | - | - | - | - | C-14 | 5.53 |
| C-15 | - | 15.33 | 80.70 | 91.94 | 27.90 | - | - | - | - | - | - | - | - | - | - | - | C-15 | 5.61 |
| C-16 | - | 8.87 | 45.33 | 55.51 | 31.38 | - | - | - | - | - | - | - | - | - | - | - | C-16 | 5.78 |
| C-17 | - | 7.38 | 29.06 | 38.43 | 25.20 | 7.75 | - | - | - | - | - | - | - | - | - | - | C-17 | 5.97 |
| C-18 | - | 2.12 | 12.35 | 16.87 | 10.69 | 3.59 | - | - | - | - | - | - | - | - | - | - | C-18 | 6.03 |
| C-19 | - | - | 3.07 | 3.29 | 2.02 | 0.30 | - | - | - | - | - | - | - | - | - | - | C-19 | 5.95 |
| C-20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-20 | - |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 | - |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 | - |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 | - |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | - |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | - |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | - |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | **Cl-35** | **Cl-36** | **Cl-37** | **Cl-38** | **Cl-39** | **Cl-40** | **Cl-41** | **Cl-42** | **Cl-43** | **Cl-44** | **Cl-45** | **Cl-46** | **Cl-47** | **Cl-48** | **Cl-49** | **Cl-50** | | |
| $n_C$ | - | 15.03 | 14.97 | 15.20 | 15.73 | 17.36 | - | - | - | - | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Yoga mat **Code:** P2

**Most Abundant Homologue:** $C_{15}Cl_5$ 9.46E+03 cts **LOD:** 100 cts **n (C)** 16.08 **n (H)** 22.78 **n (Cl)** 5.38

p vSC - % p SC - % p MC 87.35 % p LC 12.65 % p vLC - %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 | - |
| C-11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 | - |
| C-12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-12 | - |
| C-13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-13 | - |
| C-14 | - | - | 50.69 | 6.23 | - | - | - | - | - | - | - | - | - | - | - | - | C-14 | 5.11 |
| C-15 | - | 11.45 | **100** | 43.34 | - | - | - | - | - | - | - | - | - | - | - | - | C-15 | 5.21 |
| C-16 | - | 11.39 | 80.95 | 61.29 | - | - | - | - | - | - | - | - | - | - | - | - | C-16 | 5.32 |
| C-17 | - | 11.34 | 70.59 | 63.52 | 19.46 | - | - | - | - | - | - | - | - | - | - | - | C-17 | 5.55 |
| C-18 | - | - | 34.30 | 33.04 | 9.44 | - | - | - | - | - | - | - | - | - | - | - | C-18 | 5.68 |
| C-19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-19 | - |
| C-20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-20 | - |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 | - |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 | - |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 | - |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | - |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | - |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | - |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | **Cl-51** | **Cl-52** | **Cl-53** | **Cl-54** | **Cl-55** | **Cl-56** | **Cl-57** | **Cl-58** | **Cl-59** | **Cl-60** | **Cl-61** | **Cl-62** | **Cl-63** | **Cl-64** | **Cl-65** | **Cl-66** | | |
| $n_C$ | - | 16.00 | 15.82 | 16.36 | 17.33 | - | - | - | - | - | - | - | - | - | - | - | | |

**Table S4.** Normalized proportions (%) of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes of P3. Data were evaluated by CP-Hunter. Abundances are given relative to the intensity (cts) of the most abundant homologue (MAH). Homologues with an $MI_{100\%}$ below the limit of detection (LOD) of 100 cts were considered undetected (-). Weighted mean carbon- ($n_C$), hydrogen- ($n_H$) and chlorine- ($n_{Cl}$) numbers are provided per class of compound. Mean chlorine ($n_{Cl}$) and carbon ($n_C$) numbers are also presented per carbon-chain length and per chlorination degree, respectively. Proportions of very short- (ρ vSC-) short- (ρ SC-), medium- (ρ MC-), long- (ρ LC-) and very long-chain (ρ vLC-) material are depicted.

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Coating of an electronic cable **Code:** P3

**Most Abundant Homologue:** $C_{14}Cl_6$ 5.26E+05 cts **LOD:** 100 cts **n (C)** 15.29 **n (H)** 25.93 **n (Cl)** 6.65

p vSC 0 % p SC 26.80 % p MC 52.60 % p LC 13.75 % p vLC 6.80 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | 0.07 | 0.38 | 0.17 | - | - | - | - | - | - | - | - | - | - | - | C-9 | 6.16 |
| C-10 | - | - | 1.62 | 4.31 | 2.39 | 0.50 | 0.01 | - | - | - | - | - | - | - | - | - | C-10 | 6.21 |
| C-11 | - | 0.14 | 5.67 | 13.11 | 8.27 | 2.25 | 0.33 | - | - | - | - | - | - | - | - | - | C-11 | 6.26 |
| C-12 | - | 0.35 | 8.69 | 19.74 | 14.27 | 4.65 | 0.91 | 0.04 | - | - | - | - | - | - | - | - | C-12 | 6.35 |
| C-13 | - | 1.53 | 26.00 | 60.08 | 52.23 | 22.87 | 5.37 | 0.82 | 0.03 | - | - | - | - | - | - | - | C-13 | 6.52 |
| C-14 | - | 3.30 | 43.39 | **100** | 95.26 | 50.43 | 14.79 | 2.84 | 0.36 | - | - | - | - | - | - | - | C-14 | 6.66 |
| C-15 | - | 1.15 | 12.74 | 32.49 | 33.19 | 19.86 | 7.95 | 2.09 | 0.37 | - | - | - | - | - | - | - | C-15 | 6.84 |
| C-16 | - | 0.62 | 5.24 | 12.40 | 13.60 | 9.14 | 4.16 | 1.43 | 0.32 | - | - | - | - | - | - | - | C-16 | 6.96 |
| C-17 | - | 0.64 | 4.48 | 9.28 | 9.58 | 6.74 | 3.34 | 1.23 | 0.34 | 0.02 | - | - | - | - | - | - | C-17 | 6.96 |
| C-18 | - | 0.73 | 4.24 | 7.92 | 7.27 | 4.57 | 2.27 | 0.85 | 0.24 | 0.04 | - | - | - | - | - | - | C-18 | 6.80 |
| C-19 | - | 1.02 | 5.11 | 8.83 | 7.59 | 4.16 | 1.81 | 0.63 | 0.14 | - | - | - | - | - | - | - | C-19 | 6.60 |
| C-20 | 0.03 | 1.36 | 6.92 | 11.45 | 9.96 | 5.60 | 2.22 | 0.73 | 0.17 | - | - | - | - | - | - | - | C-20 | 6.57 |
| C-21 | 0.04 | 1.19 | 6.07 | 11.02 | 9.19 | 5.16 | 2.06 | 0.66 | 0.16 | - | - | - | - | - | - | - | C-21 | 6.58 |
| C-22 | 0.03 | 0.98 | 4.83 | 9.22 | 8.21 | 4.53 | 2.01 | 0.63 | 0.16 | - | - | - | - | - | - | - | C-22 | 6.64 |
| C-23 | - | 0.55 | 2.89 | 5.55 | 5.25 | 3.11 | 1.37 | 0.48 | 0.13 | - | - | - | - | - | - | - | C-23 | 6.73 |
| C-24 | - | 0.23 | 1.20 | 2.56 | 2.46 | 1.63 | 0.76 | 0.29 | 0.08 | - | - | - | - | - | - | - | C-24 | 6.86 |
| C-25 | 0.03 | 0.08 | 0.46 | 1.02 | 1.10 | 0.74 | 0.39 | 0.14 | 0.03 | - | - | - | - | - | - | - | C-25 | 6.95 |
| C-26 | - | - | 0.15 | 0.36 | 0.41 | 0.28 | 0.16 | 0.05 | - | - | - | - | - | - | - | - | C-26 | 7.07 |
| C-27 | - | - | 0.03 | 0.11 | 0.11 | 0.07 | 0.04 | - | - | - | - | - | - | - | - | - | C-27 | 6.96 |
| C-28 | - | - | - | 0.04 | 0.03 | - | - | - | - | - | - | - | - | - | - | - | C-28 | 6.44 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | | |
| $n_C$ | 21.85 | 17.04 | 15.29 | 15.02 | 15.14 | 15.50 | 16.13 | 16.93 | 17.69 | 17.71 | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Coating of an electronic cable **Code:** P3

**Most Abundant Homologue:** $C_{14}Cl_6$ 5.33E+04 cts **LOD:** 100 cts **n (C)** 16.87 **n (H)** 27.52 **n (Cl)** 6.22

p vSC - % p SC 15 % p MC 46 % p LC 25 % p vLC 14 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | 1.10 | 1.20 | 0.25 | - | - | - | - | - | - | - | - | - | - | - | C-10 | 5.67 |
| C-11 | - | 0.41 | 4.20 | 5.24 | 1.86 | - | - | - | - | - | - | - | - | - | - | - | C-11 | 5.73 |
| C-12 | - | 0.90 | 8.41 | 11.41 | 4.48 | 0.65 | - | - | - | - | - | - | - | - | - | - | C-12 | 5.83 |
| C-13 | - | 4.20 | 34.12 | 47.03 | 24.20 | 5.84 | 0.38 | - | - | - | - | - | - | - | - | - | C-13 | 5.95 |
| C-14 | - | 10.31 | 71.49 | **100** | 60.81 | 16.98 | 2.51 | - | - | - | - | - | - | - | - | - | C-14 | 6.04 |
| C-15 | - | 4.35 | 27.36 | 42.74 | 30.05 | 10.68 | 2.60 | - | - | - | - | - | - | - | - | - | C-15 | 6.20 |
| C-16 | - | 2.48 | 12.95 | 20.71 | 15.81 | 6.81 | 1.97 | - | - | - | - | - | - | - | - | - | C-16 | 6.29 |
| C-17 | - | 2.61 | 11.35 | 17.37 | 13.18 | 6.39 | 2.09 | 0.27 | - | - | - | - | - | - | - | - | C-17 | 6.31 |
| C-18 | - | 3.26 | 11.41 | 16.19 | 12.09 | 6.15 | 2.06 | 0.28 | - | - | - | - | - | - | - | - | C-18 | 6.27 |
| C-19 | - | 4.35 | 14.00 | 18.74 | 14.43 | 7.48 | 2.63 | 0.46 | 0.10 | - | - | - | - | - | - | - | C-19 | 6.27 |
| C-20 | - | 5.60 | 18.16 | 23.89 | 19.95 | 11.46 | 4.55 | 0.79 | - | - | - | - | - | - | - | - | C-20 | 6.36 |
| C-21 | - | 4.90 | 15.10 | 21.08 | 17.49 | 9.55 | 3.65 | 0.59 | - | - | - | - | - | - | - | - | C-21 | 6.35 |
| C-22 | - | 3.70 | 11.60 | 17.50 | 15.56 | 8.74 | 3.59 | 0.78 | - | - | - | - | - | - | - | - | C-22 | 6.45 |
| C-23 | - | 2.00 | 7.09 | 11.77 | 11.35 | 6.99 | 3.09 | 0.91 | - | - | - | - | - | - | - | - | C-23 | 6.63 |
| C-24 | - | 0.83 | 3.47 | 6.64 | 6.78 | 4.91 | 2.25 | 0.90 | - | - | - | - | - | - | - | - | C-24 | 6.85 |
| C-25 | - | - | 1.55 | 3.22 | 3.70 | 2.76 | 1.40 | 0.60 | - | - | - | - | - | - | - | - | C-25 | 7.08 |
| C-26 | - | - | 0.48 | 1.18 | 1.53 | 0.98 | 0.69 | - | - | - | - | - | - | - | - | - | C-26 | 7.04 |
| C-27 | - | - | - | 0.29 | 0.40 | 0.15 | - | - | - | - | - | - | - | - | - | - | C-27 | 6.84 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | **Cl-19** | **Cl-20** | **Cl-21** | **Cl-22** | **Cl-23** | **Cl-24** | **Cl-25** | **Cl-26** | **Cl-27** | **Cl-28** | **Cl-29** | **Cl-30** | **Cl-31** | **Cl-32** | **Cl-33** | **Cl-34** | | |
| $n_C$ | - | 17.38 | 16.22 | 16.35 | 17.08 | 18.32 | 19.66 | 21.73 | 19.00 | - | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Coating of an electronic cable **Code:** P3

**Most Abundant Homologue:** $C_{14}Cl_5$ 6.23E+03 cts **LOD:** 100 cts **n (C)** 18.78 **n (H)** 29.75 **n (Cl)** 5.82

p vSC - % p SC 4 % p MC 32 % p LC 40 % p vLC 24 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 | - |
| C-11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 | - |
| C-12 | - | - | 2.91 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-12 | 5.00 |
| C-13 | - | 4.65 | 29.58 | 20.13 | - | - | - | - | - | - | - | - | - | - | - | - | C-13 | 5.28 |
| C-14 | - | 21.58 | **100** | 74.17 | 15.29 | - | - | - | - | - | - | - | - | - | - | - | C-14 | 5.39 |
| C-15 | - | 12.25 | 53.06 | 45.12 | 6.23 | - | - | - | - | - | - | - | - | - | - | - | C-15 | 5.39 |
| C-16 | - | 7.89 | 31.22 | 29.43 | 11.49 | - | - | - | - | - | - | - | - | - | - | - | C-16 | 5.56 |
| C-17 | - | 9.49 | 29.65 | 30.07 | 13.95 | 2.59 | - | - | - | - | - | - | - | - | - | - | C-17 | 5.66 |
| C-18 | - | 7.86 | 31.08 | 31.46 | 16.51 | 6.09 | - | - | - | - | - | - | - | - | - | - | C-18 | 5.81 |
| C-19 | - | 18.62 | 40.34 | 38.44 | 24.98 | 10.99 | 3.09 | - | - | - | - | - | - | - | - | - | C-19 | 5.84 |
| C-20 | - | 28.01 | 54.20 | 52.22 | 36.67 | 20.56 | 7.38 | 2.08 | - | - | - | - | - | - | - | - | C-20 | 5.99 |
| C-21 | - | 27.40 | 50.71 | 49.85 | 35.02 | 18.78 | 7.53 | 0.85 | - | - | - | - | - | - | - | - | C-21 | 5.96 |
| C-22 | - | 22.99 | 39.87 | 41.65 | 31.98 | 17.19 | 6.39 | - | - | - | - | - | - | - | - | - | C-22 | 6.00 |
| C-23 | - | 12.91 | 24.45 | 27.89 | 23.21 | 14.22 | 5.36 | - | - | - | - | - | - | - | - | - | C-23 | 6.16 |
| C-24 | - | 5.32 | 12.41 | 17.22 | 16.44 | 9.38 | 4.80 | 0.91 | - | - | - | - | - | - | - | - | C-24 | 6.45 |
| C-25 | - | - | 4.78 | 8.71 | 9.30 | 3.87 | 2.09 | - | - | - | - | - | - | - | - | - | C-25 | 6.64 |
| C-26 | - | - | - | 2.75 | - | 2.70 | - | - | - | - | - | - | - | - | - | - | C-26 | 6.99 |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |

| | Cl-35 | Cl-36 | Cl-37 | Cl-38 | Cl-39 | Cl-40 | Cl-41 | Cl-42 | Cl-43 | Cl-44 | Cl-45 | Cl-46 | Cl-47 | Cl-48 | Cl-49 | Cl-50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 18.97 | 17.75 | 18.35 | 20.05 | 21.30 | 21.72 | 21.17 | - | - | - | - | - | - | - | - |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Coating of an electronic cable **Code:** P3

**Most Abundant Homologue:** $C_{21}Cl_5$ 1.05E+03 cts **LOD:** 100 cts **n (C)** 20.50 **n (H)** 31.45 **n (Cl)** 5.55

p vSC - % p SC - % p MC 9 % p LC 58 % p vLC 33 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 | - |
| C-11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 | - |
| C-12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-12 | - |
| C-13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-13 | - |
| C-14 | - | - | 31.37 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-14 | 5.00 |
| C-15 | - | - | 27.54 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-15 | 5.00 |
| C-16 | - | - | 22.33 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-16 | 5.00 |
| C-17 | - | - | 30.45 | 14.50 | - | - | - | - | - | - | - | - | - | - | - | - | C-17 | 5.32 |
| C-18 | - | 5.44 | 36.40 | 18.16 | - | - | - | - | - | - | - | - | - | - | - | - | C-18 | 5.21 |
| C-19 | - | 30.16 | 56.43 | 43.35 | 16.97 | - | - | - | - | - | - | - | - | - | - | - | C-19 | 5.32 |
| C-20 | - | 55.85 | 88.77 | 73.28 | 47.91 | 26.80 | - | - | - | - | - | - | - | - | - | - | C-20 | 5.66 |
| C-21 | - | 63.85 | **100** | 83.73 | 57.01 | 33.69 | - | - | - | - | - | - | - | - | - | - | C-21 | 5.69 |
| C-22 | - | 57.26 | 79.07 | 71.84 | 48.17 | 29.47 | 5.36 | - | - | - | - | - | - | - | - | - | C-22 | 5.76 |
| C-23 | - | 36.55 | 43.85 | 40.27 | 29.90 | - | - | - | - | - | - | - | - | - | - | - | C-23 | 5.42 |
| C-24 | - | 5.09 | 19.27 | 17.87 | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | 5.30 |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | - |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | - |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | - |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |

| | Cl-51 | Cl-52 | Cl-53 | Cl-54 | Cl-55 | Cl-56 | Cl-57 | Cl-58 | Cl-59 | Cl-60 | Cl-61 | Cl-62 | Cl-63 | Cl-64 | Cl-65 | Cl-66 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 21.05 | 19.68 | 20.82 | 21.13 | 21.03 | 22.00 | - | - | - | - | - | - | - | - | - |

**Table S5.** Normalized proportions (%) of C- and Cl-homologues of CPs, COs, CdiOs and CtriOs compound classes of P1. Data were evaluated by RASER. Abundances are given relative to the intensity (cts) of the most abundant homologue (MAH). Homologues with an $MI_{100\%}$ below the limit of detection (LOD) of 100 cts were considered undetected (-). Weighted mean carbon- ($n_C$), hydrogen- ($n_H$) and chlorine- ($n_{Cl}$) numbers are provided per class of compound. Mean chlorine ($n_{Cl}$) and carbon ($n_C$) numbers are also presented per carbon-chain length and per chlorination degree, respectively. Proportions of very short- (ρ vSC-) short- (ρ SC-), medium- (ρ MC-), long- (ρ LC-) and very long-chain (ρ vLC-) material are depicted.

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{15}Cl_6$ 3.60E+05 cts **LOD:** 100 cts **n (C)** 16.08 **n (H)** 27.58 **n (Cl)** 6.57

p vSC - % p SC 20.96 % p MC 55.62 % p LC 12.48 % p vLC 10.94 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | 1.42 | 4.09 | 3.23 | 0.91 | 0.07 | - | - | - | - | - | - | - | - | - | C-10 | 6.39 |
| C-11 | - | 0.46 | 7.92 | 27.64 | 32.03 | 13.37 | 2.74 | 0.32 | - | - | - | - | - | - | - | - | C-11 | 6.70 |
| C-12 | - | 1.13 | 11.92 | 31.89 | 45.03 | 30.53 | 9.11 | 1.68 | 0.13 | - | - | - | - | - | - | - | C-12 | 6.96 |
| C-13 | - | 3.59 | 21.65 | 31.82 | 29.67 | 21.36 | 10.38 | 2.56 | 0.31 | - | - | - | - | - | - | - | C-13 | 6.71 |
| C-14 | - | 16.69 | 80.57 | 98.92 | 63.27 | 20.09 | 4.95 | 1.08 | 0.08 | - | - | - | - | - | - | - | C-14 | 6.03 |
| C-15 | 0.16 | 18.04 | 80.58 | **100** | 71.58 | 28.00 | 6.71 | 1.22 | - | - | - | - | - | - | - | - | C-15 | 6.12 |
| C-16 | 0.13 | 10.62 | 44.18 | 58.98 | 48.25 | 25.12 | 7.71 | 1.52 | - | - | - | - | - | - | - | - | C-16 | 6.32 |
| C-17 | - | 6.31 | 23.98 | 36.77 | 33.29 | 21.38 | 8.61 | 2.06 | - | - | - | - | - | - | - | - | C-17 | 6.56 |
| C-18 | 0.12 | 4.32 | 14.98 | 22.32 | 27.17 | 21.98 | 13.09 | 4.63 | 0.89 | - | - | - | - | - | - | - | C-18 | 7.00 |
| C-19 | 0.08 | 2.08 | 6.22 | 9.48 | 11.60 | 10.85 | 7.16 | 3.11 | 0.77 | 0.08 | - | - | - | - | - | - | C-19 | 7.18 |
| C-20 | 0.08 | 1.30 | 3.17 | 4.91 | 5.78 | 5.16 | 3.32 | 1.50 | 0.64 | - | - | - | - | - | - | - | C-20 | 7.13 |
| C-21 | - | 1.22 | 2.50 | 3.89 | 4.43 | 3.81 | 2.48 | 1.04 | 0.38 | 0.09 | - | - | - | - | - | - | C-21 | 7.07 |
| C-22 | 0.15 | 1.50 | 2.95 | 4.39 | 5.26 | 4.11 | 2.70 | 1.17 | 0.44 | - | - | - | - | - | - | - | C-22 | 6.97 |
| C-23 | 0.17 | 1.44 | 3.32 | 4.99 | 5.92 | 5.14 | 3.12 | 1.46 | 0.59 | 0.22 | 0.08 | - | - | - | - | - | C-23 | 7.12 |
| C-24 | 0.18 | 1.35 | 3.07 | 5.38 | 6.39 | 6.00 | 3.71 | 1.86 | 0.76 | 0.31 | 0.23 | - | - | - | - | - | C-24 | 7.30 |
| C-25 | - | 1.14 | 2.48 | 4.51 | 6.37 | 5.58 | 3.75 | 1.93 | 0.82 | 0.34 | 0.12 | - | - | - | - | - | C-25 | 7.43 |
| C-26 | 0.15 | 1.02 | 2.05 | 3.52 | 5.09 | 5.18 | 3.88 | 2.02 | 0.93 | 0.39 | 0.14 | 0.14 | - | - | - | - | C-26 | 7.62 |
| C-27 | - | 0.83 | 1.58 | 2.50 | 3.65 | 3.96 | 3.33 | 1.87 | 0.91 | 0.36 | 0.13 | - | - | - | - | - | C-27 | 7.75 |
| C-28 | - | 0.60 | 1.19 | 1.81 | 2.48 | 2.88 | 2.57 | 1.58 | 0.82 | 0.34 | - | - | - | - | - | - | C-28 | 7.82 |
| C-29 | 0.12 | 0.47 | 0.88 | 1.26 | 1.73 | 2.06 | 1.80 | 1.24 | 0.67 | 0.28 | 0.09 | - | - | - | - | - | C-29 | 7.86 |
| C-30 | - | 0.35 | 0.60 | 0.86 | 1.14 | 1.36 | 1.26 | 0.93 | 0.53 | 0.24 | - | - | - | - | - | - | C-30 | 7.95 |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | | |
| $n_C$ | 21.38 | 16.55 | 15.54 | 15.40 | 15.67 | 16.61 | 18.27 | 20.34 | 23.50 | 26.08 | 25.47 | 26.00 | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{15}Cl_5$ 3.54E+04 cts **LOD:** 100 cts **n (C)** 14.74 **n (H)** 23.47 **n (Cl)** 6.02

p vSC - % p SC 30.87 % p MC 58.04 % p LC 9.87 % p vLC 1.22 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 | - |
| C-10 | - | - | 2.10 | 3.29 | 0.97 | - | - | - | - | - | - | - | - | - | - | - | C-10 | 5.82 |
| C-11 | - | - | 16.70 | 42.84 | 25.59 | 5.76 | - | - | - | - | - | - | - | - | - | - | C-11 | 6.22 |
| C-12 | - | 1.29 | 22.93 | 77.97 | 63.52 | 22.76 | 2.97 | - | - | - | - | - | - | - | - | - | C-12 | 6.48 |
| C-13 | - | 3.32 | 21.20 | 47.99 | 56.17 | 26.54 | 5.57 | - | - | - | - | - | - | - | - | - | C-13 | 6.61 |
| C-14 | - | 19.48 | 78.14 | 73.57 | 38.54 | 10.08 | - | - | - | - | - | - | - | - | - | - | C-14 | 5.73 |
| C-15 | - | 26.43 | **100** | 96.07 | 48.19 | 10.88 | 1.34 | - | - | - | - | - | - | - | - | - | C-15 | 5.72 |
| C-16 | - | 18.08 | 64.12 | 69.28 | 37.37 | 12.68 | 1.76 | - | - | - | - | - | - | - | - | - | C-16 | 5.84 |
| C-17 | - | 12.90 | 37.52 | 46.81 | 28.98 | 10.95 | 2.09 | - | - | - | - | - | - | - | - | - | C-17 | 5.96 |
| C-18 | - | 7.89 | 21.93 | 29.14 | 25.10 | 13.59 | - | - | - | - | - | - | - | - | - | - | C-18 | 6.15 |
| C-19 | - | 3.02 | 7.91 | 9.72 | 9.48 | - | - | - | - | - | - | - | - | - | - | - | C-19 | 5.85 |
| C-20 | - | 1.32 | 2.94 | 3.55 | 3.19 | - | - | - | - | - | - | - | - | - | - | - | C-20 | 5.78 |
| C-21 | - | 0.96 | 1.70 | 2.22 | - | - | - | - | - | - | - | - | - | - | - | - | C-21 | 5.26 |
| C-22 | - | 0.97 | 1.52 | 1.91 | - | - | - | - | - | - | - | - | - | - | - | - | C-22 | 5.21 |
| C-23 | - | 0.75 | 1.51 | 1.83 | - | - | - | - | - | - | - | - | - | - | - | - | C-23 | 5.26 |
| C-24 | - | 0.68 | 1.37 | 1.85 | - | - | - | - | - | - | - | - | - | - | - | - | C-24 | 5.30 |
| C-25 | - | 0.51 | 1.18 | 1.58 | - | - | - | - | - | - | - | - | - | - | - | - | C-25 | 5.33 |
| C-26 | - | 0.38 | 0.99 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 | 4.72 |
| C-27 | - | - | 0.81 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 | 5.00 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 | - |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 | - |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 | - |
| | **Cl-19** | **Cl-20** | **Cl-21** | **Cl-22** | **Cl-23** | **Cl-24** | **Cl-25** | **Cl-26** | **Cl-27** | **Cl-28** | **Cl-29** | **Cl-30** | **Cl-31** | **Cl-32** | **Cl-33** | **Cl-34** | | |
| $n_C$ | - | 15.92 | 15.16 | 14.59 | 14.34 | 14.30 | 13.97 | - | - | - | - | - | - | - | - | - | | |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** C16Cl5 8.60E+03 cts **LOD:** 100 cts **n (C)** 16.33 **n (H)** 25.49 **n (Cl)** 5.18

p vSC - % p SC 8.61 % p MC 64.52 % p LC 25.01 % p vLC 1.86 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** | - |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** | - |
| **C-11** | - | - | 2.60 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** | 5.00 |
| **C-12** | - | - | 14.10 | 17.72 | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** | 5.56 |
| **C-13** | - | - | 13.68 | 25.07 | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** | 5.65 |
| **C-14** | - | 13.35 | 33.87 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** | 4.72 |
| **C-15** | - | 29.51 | 84.41 | 40.31 | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** | 5.07 |
| **C-16** | - | 33.10 | **100** | 56.54 | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** | 5.12 |
| **C-17** | - | 28.77 | 70.35 | 57.94 | - | - | - | - | - | - | - | - | - | - | - | - | **C-17** | 5.19 |
| **C-18** | - | - | 69.12 | 62.20 | - | - | - | - | - | - | - | - | - | - | - | - | **C-18** | 5.47 |
| **C-19** | - | 10.67 | 28.37 | 24.13 | - | - | - | - | - | - | - | - | - | - | - | - | **C-19** | 5.21 |
| **C-20** | - | 4.16 | 11.06 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-20** | 4.73 |
| **C-21** | - | 2.77 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** | 4.00 |
| **C-22** | - | 2.45 | 4.93 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** | 4.67 |
| **C-23** | - | 2.89 | 4.35 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** | 4.60 |
| **C-24** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** | - |
| **C-25** | - | 1.19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** | 4.00 |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** | - |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** | - |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** | - |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** | - |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** | - |

| | Cl-35 | Cl-36 | Cl-37 | Cl-38 | Cl-39 | Cl-40 | Cl-41 | Cl-42 | Cl-43 | Cl-44 | Cl-45 | Cl-46 | Cl-47 | Cl-48 | Cl-49 | Cl-50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 16.63 | 16.31 | 16.24 | - | - | - | - | - | - | - | - | - | - | - | - |

**Normalized homologue-proportion (%, relative to the most abundant homologue)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Sewage sludge **Code:** P1

**Most Abundant Homologue:** $C_{18}Cl_5$ 2.63E+03 cts **LOD:** 100 cts **n (C)** 17.69 **n (H)** 26.34 **n (Cl)** 5.05

p vSC - % p SC - % p MC 42.92 % p LC 49.53 % p vLC 7.55 %

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | | $n_{Cl}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** | - |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** | - |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** | - |
| **C-12** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** | - |
| **C-13** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** | - |
| **C-14** | - | - | - | - | 83.85 | - | - | - | - | - | - | - | - | - | - | - | **C-14** | 7.00 |
| **C-15** | - | 13.49 | 17.17 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** | 4.56 |
| **C-16** | - | 24.32 | 45.63 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** | 4.65 |
| **C-17** | - | 36.47 | 67.02 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-17** | 4.65 |
| **C-18** | - | 48.75 | **100** | 50.84 | - | - | - | - | - | - | - | - | - | - | - | - | **C-18** | 5.01 |
| **C-19** | - | 25.91 | 51.25 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-19** | 4.66 |
| **C-20** | - | 10.45 | 16.91 | 10.83 | - | - | - | - | - | - | - | - | - | - | - | - | **C-20** | 5.01 |
| **C-21** | - | 7.98 | 9.38 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** | 4.54 |
| **C-22** | - | 8.13 | 8.02 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** | 4.50 |
| **C-23** | - | 8.21 | 8.66 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** | 4.51 |
| **C-24** | - | 6.99 | 5.78 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** | 4.45 |
| **C-25** | - | 4.90 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** | 4.00 |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** | - |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** | - |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** | - |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** | - |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** | - |

| | Cl-51 | Cl-52 | Cl-53 | Cl-54 | Cl-55 | Cl-56 | Cl-57 | Cl-58 | Cl-59 | Cl-60 | Cl-61 | Cl-62 | Cl-63 | Cl-64 | Cl-65 | Cl-66 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_C$ | - | 18.49 | 18.04 | 18.35 | 14.00 | - | - | - | - | - | - | - | - | - | - | - |

**Table S6**. Proportions of very short- (ρ, vSC-), short- (ρ, SC-), medium- (ρ, MC-), long- (ρ, LC-) and very long-chain (ρ, vLC-) materials of chlorinated paraffins (CPs), mono- (COs), di-olefins (CdiOs) and tri-olefins (CtriOs). Sample P1 was evaluated by CP-Hunter and RASER, whereas samples P2 and P3 were evaluated by CP-Hunter.

| Name | Code | Chain-length | Compound class proportion / % | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Sewage sludge (By CP-Hunter) | P1 | *p* vSCCP ($C_9$) | - | - | - | - |
| | | *p* SCCP ($C_{10}$-$C_{13}$) | 20.93 | 30.05 | 8.90 | - |
| | | *p* MCCP ($C_{14}$-$C_{17}$) | 55.58 | 56.27 | 60.61 | 33.00 |
| | | *p* LCCP ($C_{18}$-$C_{21}$) | 12.49 | 10.62 | 27.95 | 58.16 |
| | | *p* vLCCP ($C_{22}$-$C_{30}$) | 11.01 | 3.07 | 2.54 | 8.84 |
| Sewage sludge (By RASER) | P1 | *p* vSCCP ($C_9$) | - | - | - | - |
| | | *p* SCCP ($C_{10}$-$C_{13}$) | 20.96 | 30.87 | 8.61 | - |
| | | *p* MCCP ($C_{14}$-$C_{17}$) | 55.62 | 58.04 | 64.52 | 42.92 |
| | | *p* LCCP ($C_{18}$-$C_{21}$) | 12.48 | 9.87 | 25.01 | 49.53 |
| | | *p* vLCCP ($C_{22}$-$C_{30}$) | 10.94 | 1.22 | 1.86 | 7.55 |
| Yoga mat | P2 | *p* vSCCP ($C_9$) | - | - | - | - |
| | | *p* SCCP ($C_{10}$-$C_{13}$) | 22.78 | 16.47 | 7.15 | - |
| | | *p* MCCP ($C_{14}$-$C_{17}$) | 74.82 | 80.11 | 86.18 | 87.35 |
| | | *p* LCCP ($C_{18}$-$C_{21}$) | 2.40 | 3.41 | 6.68 | 12.65 |
| | | *p* vLCCP ($C_{22}$-$C_{30}$) | - | - | - | - |
| Coating of an electronic cable | P3 | *p* vSCCP ($C_9$) | 0.06 | - | - | - |
| | | *p* SCCP ($C_{10}$-$C_{13}$) | 26.80 | 14.58 | 3.72 | - |
| | | *p* MCCP ($C_{14}$-$C_{17}$) | 52.60 | 46.18 | 32.04 | 8.72 |
| | | *p* LCCP ($C_{18}$-$C_{21}$) | 13.75 | 25.28 | 40.30 | 57.86 |
| | | *p* vLCCP ($C_{22}$-$C_{30}$) | 6.80 | 13.97 | 23.94 | 33.42 |

**Table S7.** Proportions of CPs, COs, CdiOs and CtriOs compound classes per C-homologue ($C_{10-30}$) in the sewage sludge (P1). Data were extracted and evaluated by CP-Hunter (top) and RASER (bottom). C-homologue with highest proportion of olefinic material is highlighted.

| Name | Code | C-homologue | Compound class proportion / % | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Sewage sludge (By CP-Hunter) | P1 | $C_{10}$ | 94.08 | 5.92 | - | - |
| | | $C_{11}$ | 90.36 | 9.51 | 0.13 | - |
| | | $C_{12}$ | 87.15 | 12.37 | 0.48 | - |
| | | $C_{13}$ | 87.76 | 11.49 | 0.75 | - |
| | | $C_{14}$ | 92.53 | 6.93 | 0.53 | - |
| | | $C_{15}$ | 90.72 | 8.21 | 1.00 | 0.07 |
| | | $C_{16}$ | 88.99 | 9.02 | 1.79 | 0.21 |
| | | $C_{17}$ | 88.05 | 8.90 | 2.53 | 0.53 |
| | | $C_{18}$ | 88.06 | 7.94 | 2.87 | 1.13 |
| | | $C_{19}$ | 89.66 | 6.36 | 2.73 | 1.26 |
| | | $C_{20}$ | 92.20 | 4.56 | 1.89 | 1.35 |
| | | $C_{21}$ | 94.92 | 3.48 | 1.04 | 0.56 |
| | | $C_{22}$ | 95.91 | 2.78 | 0.85 | 0.46 |
| | | $C_{23}$ | 96.26 | 2.26 | 0.72 | 0.76 |
| | | $C_{24}$ | 97.14 | 2.14 | 0.45 | 0.27 |
| | | $C_{25}$ | 98.25 | 1.75 | - | - |
| | | $C_{26}$ | 98.10 | 1.90 | - | - |
| | | $C_{27}$ | 97.78 | 2.22 | - | - |
| | | $C_{28}$ | 97.05 | 2.95 | - | - |
| | | $C_{29}$ | 96.27 | 3.73 | - | - |
| | | $C_{30}$ | 95.97 | 4.03 | - | - |
| Sewage sludge (By RASER) | P1 | $C_{10}$ | 93.96 | 6.04 | - | - |
| | | $C_{11}$ | 90.37 | 9.56 | 0.07 | - |
| | | $C_{12}$ | 87.03 | 12.46 | 0.50 | - |
| | | $C_{13}$ | 87.88 | 11.45 | 0.67 | - |
| | | $C_{14}$ | 92.44 | 6.99 | 0.36 | 0.20 |
| | | $C_{15}$ | 90.62 | 8.23 | 1.09 | 0.07 |
| | | $C_{16}$ | 88.70 | 9.02 | 2.04 | 0.23 |
| | | $C_{17}$ | 87.92 | 9.09 | 2.49 | 0.50 |
| | | $C_{18}$ | 88.52 | 7.76 | 2.54 | 1.18 |
| | | $C_{19}$ | 91.09 | 5.25 | 2.67 | 1.00 |
| | | $C_{20}$ | 93.75 | 3.92 | 1.32 | 1.01 |
| | | $C_{21}$ | 96.72 | 2.34 | 0.32 | 0.62 |
| | | $C_{22}$ | 96.90 | 1.84 | 0.75 | 0.50 |
| | | $C_{23}$ | 97.43 | 1.48 | 0.64 | 0.45 |
| | | $C_{24}$ | 98.39 | 1.29 | - | 0.31 |
| | | $C_{25}$ | 98.60 | 1.17 | 0.10 | 0.13 |
| | | $C_{26}$ | 99.45 | 0.55 | - | - |
| | | $C_{27}$ | 99.59 | 0.41 | - | - |
| | | $C_{28}$ | 100 | - | - | - |
| | | $C_{29}$ | 100 | - | - | - |
| | | $C_{30}$ | 100 | - | - | - |

**Table S8.** Proportions of CPs, COs, CdiOs and CtriOs compound classes per C-homologue ($C_{10–30}$) in P2 and P3. Data were extracted and evaluated with CP-Hunter. C-homologue with highest proportion of olefinic material is highlighted.

| Name | Code | C-homologue | Compound class proportion / % | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Yoga mat | P2 | $C_{10}$ | 100 | - | - | - |
| | | $C_{11}$ | 97.73 | 2.27 | - | - |
| | | $C_{12}$ | 95.09 | 4.87 | 0.05 | - |
| | | $C_{13}$ | 93.88 | 5.79 | 0.33 | - |
| | | $C_{14}$ | 92.23 | 7.08 | 0.67 | 0.02 |
| | | $C_{15}$ | 90.35 | 8.45 | 1.09 | 0.10 |
| | | $C_{16}$ | 88.23 | 9.87 | 1.66 | 0.24 |
| | | $C_{17}$ | 86.61 | 10.66 | 2.27 | 0.46 |
| | | $C_{18}$ | 86.18 | 10.74 | 2.52 | 0.56 |
| | | $C_{19}$ | 88.56 | 9.39 | 2.05 | - |
| | | $C_{20}$ | 100 | - | - | - |
| | | $C_{21}$ | - | - | - | - |
| | | $C_{22}$ | - | - | - | - |
| | | $C_{23}$ | - | - | - | - |
| | | $C_{24}$ | - | - | - | - |
| | | $C_{25}$ | - | - | - | - |
| | | $C_{26}$ | - | - | - | - |
| | | $C_{27}$ | - | - | - | - |
| | | $C_{28}$ | - | - | - | - |
| | | $C_{29}$ | - | - | - | - |
| | | $C_{30}$ | - | - | - | - |
| Coating of an electronic cable | P3 | $C_{10}$ | 97.15 | 2.85 | - | - |
| | | $C_{11}$ | 96.17 | 3.83 | - | - |
| | | $C_{12}$ | 94.83 | 5.10 | 0.07 | - |
| | | $C_{13}$ | 93.18 | 6.47 | 0.35 | - |
| | | $C_{14}$ | 91.43 | 7.82 | 0.74 | 0.02 |
| | | $C_{15}$ | 89.15 | 9.68 | 1.12 | 0.04 |
| | | $C_{16}$ | 86.79 | 11.38 | 1.75 | 0.08 |
| | | $C_{17}$ | 84.59 | 12.79 | 2.41 | 0.21 |
| | | $C_{18}$ | 81.40 | 15.07 | 3.18 | 0.35 |
| | | $C_{19}$ | 78.11 | 16.80 | 4.31 | 0.78 |
| | | $C_{20}$ | 76.96 | 17.11 | 4.76 | 1.17 |
| | | $C_{21}$ | 77.62 | 16.00 | 4.91 | 1.47 |
| | | $C_{22}$ | 77.87 | 15.84 | 4.82 | 1.47 |
| | | $C_{23}$ | 76.44 | 17.31 | 5.06 | 1.19 |
| | | $C_{24}$ | 72.54 | 20.60 | 6.20 | 0.66 |
| | | $C_{25}$ | 70.34 | 23.65 | 6.00 | - |
| | | $C_{26}$ | 71.94 | 24.80 | 3.25 | - |
| | | $C_{27}$ | 81.00 | 19.00 | - | - |
| | | $C_{28}$ | 100 | - | - | - |
| | | $C_{29}$ | - | - | - | - |
| | | $C_{30}$ | - | - | - | - |

**Table S9**. Distributions of Cl-homologues (%) per carbon-chain length of CPs, COs, CdiOs and CtriOs compound classes in the sewage sludge (P1). Data were evaluated by CP-Hunter. Highlighted are the most abundant Cl-homologues per chain length.

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | 0.57 | 14.69 | **42.31** | 32.79 | 9.05 | 0.60 | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | 0.53 | 9.41 | 33.02 | **38.02** | 15.51 | 3.17 | 0.35 | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | 0.85 | 9.05 | 24.43 | **34.36** | 23.05 | 6.92 | 1.24 | 0.10 | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 2.96 | 17.89 | **26.38** | 24.37 | 17.57 | 8.54 | 2.06 | 0.23 | - | - | - | - | - | - | - | **C-13** |
| **C-14** | 0.03 | 5.81 | 27.98 | **34.98** | 22.08 | 7.03 | 1.71 | 0.36 | 0.02 | - | - | - | - | - | - | - | **C-14** |
| **C-15** | 0.06 | 5.82 | 26.46 | **32.71** | 23.19 | 9.19 | 2.18 | 0.39 | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | 0.07 | 5.36 | 22.57 | **30.27** | 24.34 | 12.65 | 3.89 | 0.77 | 0.08 | - | - | - | - | - | - | - | **C-16** |
| **C-17** | 0.08 | 4.75 | 18.01 | **28.01** | 25.11 | 15.86 | 6.44 | 1.53 | 0.22 | - | - | - | - | - | - | - | **C-17** |
| **C-18** | 0.10 | 3.91 | 13.39 | 20.64 | **24.64** | 20.34 | 11.91 | 4.28 | 0.78 | - | - | - | - | - | - | - | **C-18** |
| **C-19** | 0.16 | 4.02 | 11.99 | 18.69 | **22.56** | 21.11 | 13.82 | 6.11 | 1.45 | 0.09 | - | - | - | - | - | - | **C-19** |
| **C-20** | 0.30 | 4.99 | 12.20 | 18.89 | **22.36** | 20.41 | 12.78 | 5.87 | 1.93 | 0.28 | - | - | - | - | - | - | **C-20** |
| **C-21** | 1.02 | 6.06 | 12.47 | 19.61 | **22.55** | 19.29 | 12.36 | 4.75 | 1.50 | 0.37 | - | - | - | - | - | - | **C-21** |
| **C-22** | 0.65 | 6.44 | 12.73 | 19.19 | **23.13** | 18.48 | 11.82 | 4.67 | 1.82 | 1.05 | - | - | - | - | - | - | **C-22** |
| **C-23** | 0.64 | 5.50 | 12.40 | 19.10 | **22.78** | 19.60 | 11.82 | 5.06 | 2.12 | 0.73 | 0.24 | - | - | - | - | - | **C-23** |
| **C-24** | 0.63 | 4.53 | 10.50 | 18.54 | **22.45** | 20.76 | 12.25 | 6.17 | 2.54 | 0.94 | 0.68 | - | - | - | - | - | **C-24** |
| **C-25** | 2.00 | 4.09 | 8.89 | 16.62 | **23.49** | 20.38 | 13.24 | 6.95 | 2.90 | 1.12 | 0.32 | - | - | - | - | - | **C-25** |
| **C-26** | 0.61 | 4.13 | 8.26 | 14.66 | **21.54** | 21.20 | 15.33 | 8.23 | 3.70 | 1.45 | 0.43 | 0.47 | - | - | - | - | **C-26** |
| **C-27** | 0.57 | 4.26 | 8.28 | 13.33 | 19.81 | **20.29** | 16.89 | 9.73 | 4.60 | 1.72 | 0.53 | - | - | - | - | - | **C-27** |
| **C-28** | 0.98 | 4.11 | 8.23 | 12.95 | 17.62 | **19.72** | 17.29 | 10.86 | 5.57 | 2.08 | 0.58 | - | - | - | - | - | **C-28** |
| **C-29** | 1.05 | 4.49 | 8.18 | 12.63 | 16.53 | **19.16** | 16.78 | 11.98 | 6.14 | 2.42 | 0.64 | - | - | - | - | - | **C-29** |
| **C-30** | 1.07 | 4.76 | 8.17 | 12.18 | 15.49 | **18.25** | 16.80 | 12.92 | 6.94 | 2.73 | 0.69 | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | 33.16 | **52.09** | 14.75 | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | 0.74 | 18.16 | **47.31** | 27.81 | 5.98 | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | 0.68 | 12.10 | **40.56** | 33.60 | 11.66 | 1.40 | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 2.10 | 12.95 | 30.57 | **34.85** | 16.38 | 3.15 | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 9.04 | **34.97** | 33.94 | 17.24 | 4.38 | 0.43 | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 9.56 | **35.26** | 34.28 | 16.77 | 3.70 | 0.43 | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 9.11 | 31.25 | **34.39** | 18.49 | 5.96 | 0.80 | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 9.33 | 26.99 | **33.67** | 21.05 | 7.54 | 1.42 | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 7.67 | 21.61 | **28.91** | 24.87 | 12.99 | 3.94 | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 7.94 | 21.09 | 26.23 | **26.25** | 14.94 | 3.55 | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 9.59 | 21.94 | **27.29** | 23.79 | 13.47 | 3.92 | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 12.27 | 22.01 | **29.54** | 23.52 | 12.65 | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | 13.53 | 21.12 | **30.69** | 25.91 | 8.75 | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | 10.41 | 22.20 | **30.62** | 26.37 | 10.40 | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | 10.02 | 19.42 | **33.70** | 24.06 | 12.79 | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | 8.56 | 21.37 | **33.25** | 26.90 | 9.92 | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | 18.71 | 30.94 | **31.32** | 9.33 | 9.71 | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | 17.47 | 25.42 | **31.54** | 9.83 | 15.74 | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | 12.04 | 24.14 | **25.02** | 20.31 | 18.50 | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | 8.67 | 20.06 | 25.02 | **28.18** | 18.08 | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | 17.27 | **27.26** | 27.11 | 28.36 | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | 41.36 | **58.64** | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | 39.39 | **54.60** | 6.01 | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | - | 32.46 | **52.22** | 15.33 | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 18.14 | **53.54** | 28.32 | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 19.86 | **54.60** | 25.54 | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 19.37 | **48.45** | 29.66 | 2.52 | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 17.27 | **43.43** | 32.64 | 6.66 | - | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 3.31 | **41.05** | 39.61 | 16.03 | - | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 15.54 | **37.14** | 33.43 | 13.89 | - | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 18.66 | **40.90** | 31.87 | 8.57 | - | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 28.93 | **35.25** | 35.82 | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | 25.20 | **46.01** | 28.78 | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | 33.12 | **42.57** | 24.31 | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | 33.99 | **41.96** | 24.05 | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 43.08 | **56.92** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 37.98 | **62.02** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 32.11 | **53.21** | 14.67 | - | - | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 25.13 | **49.46** | 25.41 | - | - | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 24.69 | **48.25** | 27.06 | - | - | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 19.30 | **55.44** | 14.91 | 10.35 | - | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 48.98 | **51.02** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | **53.42** | 46.58 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | **27.69** | 26.05 | 46.26 | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | **54.55** | 45.45 | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Table S10**. Distributions of Cl-homologues (%) per carbon-chain length of CPs, COs, CdiOs and CtriOs compound classes in the sewage sludge (P1). Data were evaluated by RASER. Highlighted are the most abundant Cl-homologues per chain length.

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | 14.64 | **42.06** | 33.27 | 9.33 | 0.69 | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | 0.54 | 9.38 | 32.72 | **37.91** | 15.82 | 3.25 | 0.38 | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | 0.86 | 9.07 | 24.26 | **34.27** | 23.23 | 6.93 | 1.28 | 0.10 | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 2.96 | 17.84 | **26.23** | 24.45 | 17.60 | 8.55 | 2.11 | 0.25 | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 5.84 | 28.21 | **34.63** | 22.15 | 7.03 | 1.73 | 0.38 | 0.03 | - | - | - | - | - | - | - | **C-14** |
| **C-15** | 0.05 | 5.89 | 26.31 | **32.65** | 23.37 | 9.14 | 2.19 | 0.40 | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | 0.07 | 5.40 | 22.48 | **30.01** | 24.55 | 12.78 | 3.92 | 0.77 | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 4.77 | 18.11 | **27.77** | 25.15 | 16.14 | 6.51 | 1.55 | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | 0.11 | 3.95 | 13.68 | 20.39 | **24.82** | 20.08 | 11.96 | 4.22 | 0.81 | - | - | - | - | - | - | - | **C-18** |
| **C-19** | 0.16 | 4.04 | 12.09 | 18.43 | **22.56** | 21.10 | 13.92 | 6.05 | 1.50 | 0.15 | - | - | - | - | - | - | **C-19** |
| **C-20** | 0.32 | 5.03 | 12.26 | 18.99 | **22.36** | 19.95 | 12.83 | 5.79 | 2.46 | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 6.15 | 12.62 | 19.58 | **22.32** | 19.18 | 12.49 | 5.25 | 1.94 | 0.47 | - | - | - | - | - | - | **C-21** |
| **C-22** | 0.66 | 6.60 | 13.02 | 19.36 | **23.21** | 18.14 | 11.90 | 5.17 | 1.93 | - | - | - | - | - | - | - | **C-22** |
| **C-23** | 0.64 | 5.43 | 12.56 | 18.85 | **22.39** | 19.41 | 11.81 | 5.53 | 2.24 | 0.83 | 0.31 | - | - | - | - | - | **C-23** |
| **C-24** | 0.61 | 4.62 | 10.50 | 18.41 | **21.84** | 20.52 | 12.68 | 6.36 | 2.60 | 1.07 | 0.79 | - | - | - | - | - | **C-24** |
| **C-25** | - | 4.21 | 9.17 | 16.67 | **23.57** | 20.63 | 13.88 | 7.14 | 3.03 | 1.27 | 0.43 | - | - | - | - | - | **C-25** |
| **C-26** | 0.62 | 4.17 | 8.36 | 14.35 | 20.77 | **21.14** | 15.84 | 8.25 | 3.78 | 1.58 | 0.57 | 0.57 | - | - | - | - | **C-26** |
| **C-27** | - | 4.33 | 8.24 | 13.06 | 19.10 | **20.74** | 17.44 | 9.77 | 4.75 | 1.87 | 0.70 | - | - | - | - | - | **C-27** |
| **C-28** | - | 4.23 | 8.33 | 12.67 | 17.40 | **20.18** | 18.01 | 11.06 | 5.75 | 2.36 | - | - | - | - | - | - | **C-28** |
| **C-29** | 1.11 | 4.39 | 8.34 | 11.92 | 16.28 | **19.45** | 17.01 | 11.67 | 6.27 | 2.68 | 0.87 | - | - | - | - | - | **C-29** |
| **C-30** | - | 4.81 | 8.20 | 11.87 | 15.67 | **18.75** | 17.28 | 12.85 | 7.30 | 3.27 | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | 33.02 | **51.75** | 15.22 | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | 18.38 | **47.13** | 28.15 | 6.33 | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | 0.67 | 11.98 | **40.73** | 33.18 | 11.89 | 1.55 | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 2.06 | 13.19 | 29.85 | **34.93** | 16.50 | 3.47 | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 8.86 | **35.55** | 33.47 | 17.53 | 4.59 | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 9.34 | **35.35** | 33.96 | 17.03 | 3.85 | 0.47 | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 8.90 | 31.54 | **34.08** | 18.38 | 6.24 | 0.86 | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 9.26 | 26.94 | **33.62** | 20.81 | 7.86 | 1.50 | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 8.08 | 22.46 | **29.84** | 25.71 | 13.91 | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 10.01 | 26.26 | **32.25** | 31.48 | - | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 11.96 | 26.75 | **32.26** | 29.03 | - | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 19.65 | 34.86 | **45.49** | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | 22.01 | 34.56 | **43.44** | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | 18.24 | 37.04 | **44.71** | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | 17.41 | 35.19 | **47.40** | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | 15.64 | 36.04 | **48.31** | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | 27.63 | **72.37** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | - | 44.30 | **55.70** | - | - | - | - | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | - | 35.30 | **64.70** | - | - | - | - | - | - | - | - | - | - | - | - | C-13 |
| C-14 | - | 28.28 | **71.72** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-14 |
| C-15 | - | 19.13 | **54.73** | 26.13 | - | - | - | - | - | - | - | - | - | - | - | - | C-15 |
| C-16 | - | 17.45 | **52.73** | 29.82 | - | - | - | - | - | - | - | - | - | - | - | - | C-16 |
| C-17 | - | 18.32 | **44.79** | 36.89 | - | - | - | - | - | - | - | - | - | - | - | - | C-17 |
| C-18 | - | - | **52.63** | 47.37 | - | - | - | - | - | - | - | - | - | - | - | - | C-18 |
| C-19 | - | 16.89 | **44.91** | 38.20 | - | - | - | - | - | - | - | - | - | - | - | - | C-19 |
| C-20 | - | 27.33 | **72.67** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-20 |
| C-21 | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 |
| C-22 | - | 33.23 | **66.77** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 |
| C-23 | - | 39.97 | **60.03** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 |
| C-25 | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Sewage sludge **Code:** P1

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-13 |
| C-14 | - | - | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | C-14 |
| C-15 | - | 43.99 | **56.01** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-15 |
| C-16 | - | 34.76 | **65.24** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-16 |
| C-17 | - | 35.24 | **64.76** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-17 |
| C-18 | - | 24.42 | **50.10** | 25.47 | - | - | - | - | - | - | - | - | - | - | - | - | C-18 |
| C-19 | - | 33.58 | **66.42** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-19 |
| C-20 | - | 27.36 | **44.28** | 28.36 | - | - | - | - | - | - | - | - | - | - | - | - | C-20 |
| C-21 | - | 45.95 | **54.05** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 |
| C-22 | - | **50.35** | 49.65 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 |
| C-23 | - | 48.65 | **51.35** | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 |
| C-24 | - | **54.76** | 45.24 | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 |
| C-25 | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Table S11**. Distributions of Cl-homologues (%) per carbon-chain length of CPs, COs, CdiOs and CtriOs compound classes in the yoga mat (P2). Data were evaluated by CP-Hunter. Highlighted are the most abundant Cl-homologues per chain length.

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Yoga mat **Code:** P2

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | - | **85.27** | 14.73 | - | - | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | - | 17.10 | **47.21** | 29.50 | 6.20 | - | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | 0.52 | 15.47 | **40.52** | 31.73 | 10.22 | 1.53 | - | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | 0.71 | 13.40 | **35.19** | 32.71 | 14.18 | 3.33 | 0.47 | - | - | - | - | - | - | - | - | C-13 |
| C-14 | - | 0.82 | 11.04 | 28.75 | **31.54** | 19.39 | 6.85 | 1.43 | 0.18 | 0.00 | - | - | - | - | - | - | C-14 |
| C-15 | - | 0.91 | 8.89 | 23.90 | **29.21** | 22.33 | 10.96 | 3.18 | 0.57 | 0.06 | - | - | - | - | - | - | C-15 |
| C-16 | - | 0.94 | 7.91 | 21.21 | **27.59** | 22.44 | 13.08 | 5.32 | 1.34 | 0.18 | - | - | - | - | - | - | C-16 |
| C-17 | - | 0.98 | 7.18 | 18.34 | **25.42** | 23.07 | 14.88 | 7.14 | 2.43 | 0.53 | 0.03 | - | - | - | - | - | C-17 |
| C-18 | - | 0.96 | 6.53 | 17.60 | **23.30** | 22.19 | 16.19 | 8.64 | 3.49 | 1.03 | 0.08 | - | - | - | - | - | C-18 |
| C-19 | - | 1.04 | 5.95 | 16.45 | **22.90** | 21.26 | 16.02 | 9.99 | 4.50 | 1.89 | - | - | - | - | - | - | C-19 |
| C-20 | - | - | 5.61 | 16.78 | **24.42** | 24.01 | 17.52 | 9.90 | 1.76 | - | - | - | - | - | - | - | C-20 |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Yoga mat **Code:** P2

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | - | 33.29 | **66.71** | - | - | - | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | 3.06 | 31.32 | **46.96** | 17.40 | 1.26 | - | - | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | 3.31 | 27.56 | **40.77** | 22.28 | 5.78 | 0.29 | - | - | - | - | - | - | - | - | - | C-13 |
| C-14 | - | 3.04 | 22.27 | **35.72** | 27.62 | 9.54 | 1.72 | 0.08 | - | - | - | - | - | - | - | - | C-14 |
| C-15 | - | 2.61 | 17.53 | **32.47** | 29.57 | 13.20 | 4.08 | 0.53 | - | - | - | - | - | - | - | - | C-15 |
| C-16 | - | 2.50 | 14.68 | **29.22** | 28.96 | 16.22 | 6.67 | 1.45 | 0.03 | 0.27 | - | - | - | - | - | - | C-16 |
| C-17 | - | 2.56 | 13.67 | 26.32 | **27.42** | 18.57 | 8.54 | 2.36 | 0.56 | - | - | - | - | - | - | - | C-17 |
| C-18 | - | 2.62 | 13.46 | 25.48 | **26.14** | 19.53 | 9.81 | 2.95 | - | - | - | - | - | - | - | - | C-18 |
| C-19 | - | - | 13.81 | 26.58 | **28.79** | 20.97 | 9.85 | - | - | - | - | - | - | - | - | - | C-19 |
| C-20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-20 |
| C-21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-21 |
| C-22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-22 |
| C-23 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-23 |
| C-24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-24 |
| C-25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Yoga mat **Code:** P2

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 7.94 | **50.51** | 38.04 | 3.50 | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 8.17 | **42.35** | 38.22 | 11.26 | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 7.10 | 37.38 | **42.59** | 12.92 | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 6.29 | 32.13 | **39.34** | 22.24 | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 6.84 | 26.96 | **35.65** | 23.37 | 7.19 | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 4.64 | 27.07 | **36.98** | 23.43 | 7.88 | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | - | 35.36 | **37.94** | 23.23 | 3.47 | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Yoga mat **Code:** P2

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | - | **89.06** | 10.94 | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 7.40 | **64.61** | 28.00 | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 7.41 | **52.69** | 39.90 | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 6.88 | **42.81** | 38.52 | 11.80 | - | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | - | **44.67** | 43.04 | 12.29 | - | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Table S12**. Distributions of Cl-homologues (%) per carbon-chain length of CPs, COs, CdiOs and CtriOs compound classes in the coating of an electronic cable (P3). Data were evaluated by CP-Hunter. Highlighted are the most abundant Cl-homologues per chain length.

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated paraffin (CP)

**Sample:** Coating of an electronic cable **Code:** P3

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | 10.67 | **62.20** | 27.13 | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | 18.32 | **48.75** | 27.08 | 5.71 | 0.14 | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | 0.45 | 19.04 | **44.04** | 27.78 | 7.57 | 1.11 | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | 0.71 | 17.86 | **40.58** | 29.35 | 9.55 | 1.87 | 0.08 | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | 0.90 | 15.39 | **35.56** | 30.92 | 13.54 | 3.18 | 0.49 | 0.02 | - | - | - | - | - | - | - | C-13 |
| C-14 | - | 1.06 | 13.98 | **32.22** | 30.69 | 16.25 | 4.77 | 0.91 | 0.12 | - | - | - | - | - | - | - | C-14 |
| C-15 | - | 1.04 | 11.59 | 29.58 | **30.22** | 18.08 | 7.24 | 1.91 | 0.34 | - | - | - | - | - | - | - | C-15 |
| C-16 | - | 1.33 | 11.17 | 26.44 | **28.98** | 19.48 | 8.87 | 3.05 | 0.69 | - | - | - | - | - | - | - | C-16 |
| C-17 | - | 1.80 | 12.56 | 26.02 | **26.88** | 18.92 | 9.36 | 3.46 | 0.96 | 0.05 | - | - | - | - | - | - | C-17 |
| C-18 | - | 2.61 | 15.08 | **28.14** | 25.82 | 16.25 | 8.08 | 3.02 | 0.86 | 0.15 | - | - | - | - | - | - | C-18 |
| C-19 | - | 3.47 | 17.44 | **30.14** | 25.92 | 14.21 | 6.19 | 2.14 | 0.49 | - | - | - | - | - | - | - | C-19 |
| C-20 | 0.08 | 3.54 | 18.01 | **29.78** | 25.91 | 14.56 | 5.77 | 1.90 | 0.44 | - | - | - | - | - | - | - | C-20 |
| C-21 | 0.11 | 3.36 | 17.07 | **30.99** | 25.86 | 14.52 | 5.79 | 1.86 | 0.45 | - | - | - | - | - | - | - | C-21 |
| C-22 | 0.11 | 3.22 | 15.78 | **30.14** | 26.83 | 14.80 | 6.56 | 2.05 | 0.52 | - | - | - | - | - | - | - | C-22 |
| C-23 | - | 2.87 | 14.93 | **28.73** | 27.15 | 16.10 | 7.08 | 2.49 | 0.65 | - | - | - | - | - | - | - | C-23 |
| C-24 | - | 2.48 | 13.01 | **27.81** | 26.75 | 17.73 | 8.21 | 3.16 | 0.86 | - | - | - | - | - | - | - | C-24 |
| C-25 | 0.66 | 1.95 | 11.43 | 25.58 | **27.59** | 18.57 | 9.89 | 3.63 | 0.70 | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | 10.64 | 25.38 | **29.12** | 19.98 | 11.06 | 3.83 | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | 9.33 | 29.19 | **29.66** | 20.12 | 11.69 | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | **55.99** | 44.01 | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated olefin (CO)

**Sample:** Coating of an electronic cable **Code:** P3

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-9 |
| C-10 | - | - | 43.13 | **47.04** | 9.82 | - | - | - | - | - | - | - | - | - | - | - | C-10 |
| C-11 | - | 3.46 | 35.87 | **44.77** | 15.91 | - | - | - | - | - | - | - | - | - | - | - | C-11 |
| C-12 | - | 3.48 | 32.53 | **44.14** | 17.33 | 2.51 | - | - | - | - | - | - | - | - | - | - | C-12 |
| C-13 | - | 3.63 | 29.47 | **40.62** | 20.91 | 5.05 | 0.33 | - | - | - | - | - | - | - | - | - | C-13 |
| C-14 | - | 3.93 | 27.28 | **38.15** | 23.20 | 6.48 | 0.96 | - | - | - | - | - | - | - | - | - | C-14 |
| C-15 | - | 3.69 | 23.23 | **36.29** | 25.51 | 9.07 | 2.20 | - | - | - | - | - | - | - | - | - | C-15 |
| C-16 | - | 4.08 | 21.33 | **34.10** | 26.04 | 11.21 | 3.25 | - | - | - | - | - | - | - | - | - | C-16 |
| C-17 | - | 4.90 | 21.31 | **32.62** | 24.74 | 12.00 | 3.92 | 0.50 | - | - | - | - | - | - | - | - | C-17 |
| C-18 | - | 6.33 | 22.19 | **31.47** | 23.52 | 11.96 | 4.00 | 0.54 | - | - | - | - | - | - | - | - | C-18 |
| C-19 | - | 7.00 | 22.50 | **30.14** | 23.20 | 12.03 | 4.22 | 0.74 | 0.17 | - | - | - | - | - | - | - | C-19 |
| C-20 | - | 6.64 | 21.51 | **28.30** | 23.64 | 13.58 | 5.39 | 0.93 | - | - | - | - | - | - | - | - | C-20 |
| C-21 | - | 6.77 | 20.87 | **29.13** | 24.17 | 13.20 | 5.04 | 0.81 | - | - | - | - | - | - | - | - | C-21 |
| C-22 | - | 6.02 | 18.87 | **28.46** | 25.32 | 14.21 | 5.84 | 1.28 | - | - | - | - | - | - | - | - | C-22 |
| C-23 | - | 4.64 | 16.41 | **27.24** | 26.26 | 16.19 | 7.16 | 2.10 | - | - | - | - | - | - | - | - | C-23 |
| C-24 | - | 3.21 | 13.47 | 25.75 | **26.28** | 19.05 | 8.73 | 3.50 | - | - | - | - | - | - | - | - | C-24 |
| C-25 | - | - | 11.71 | 24.34 | **27.99** | 20.89 | 10.55 | 4.52 | - | - | - | - | - | - | - | - | C-25 |
| C-26 | - | - | 9.91 | 24.28 | **31.55** | 20.11 | 14.15 | - | - | - | - | - | - | - | - | - | C-26 |
| C-27 | - | - | - | 34.34 | **47.66** | 17.99 | - | - | - | - | - | - | - | - | - | - | C-27 |
| C-28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-28 |
| C-29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-29 |
| C-30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | C-30 |
| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated diolefin (CdiO)

**Sample:** Coating of an electronic cable **Code:** P3

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | 8.55 | **54.42** | 37.03 | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | 10.23 | **47.39** | 35.14 | 7.24 | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | 10.50 | **45.48** | 38.68 | 5.34 | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | 9.86 | **39.01** | 36.77 | 14.36 | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | 11.07 | 34.57 | **35.07** | 16.27 | 3.03 | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 8.45 | 33.42 | **33.83** | 17.75 | 6.55 | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 13.64 | **29.56** | 28.17 | 18.30 | 8.06 | 2.26 | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 13.93 | **26.95** | 25.97 | 18.23 | 10.22 | 3.67 | 1.03 | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 14.41 | **26.67** | 26.22 | 18.41 | 9.88 | 3.96 | 0.45 | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | 14.36 | 24.91 | **26.02** | 19.98 | 10.74 | 3.99 | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | 11.95 | 22.63 | **25.81** | 21.48 | 13.16 | 4.96 | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | 8.00 | 18.67 | **25.90** | 24.72 | 14.10 | 7.23 | 1.37 | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | 16.62 | 30.31 | **32.36** | 13.45 | 7.27 | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | **50.49** | - | 49.51 | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Distribution of Cl-homologues per carbon-chain length (%)** **Compound class:** Chlorinated triolefin (CtriO)

**Sample:** Coating of an electronic cable **Code:** P3

| | Cl-3 | Cl-4 | Cl-5 | Cl-6 | Cl-7 | Cl-8 | Cl-9 | Cl-10 | Cl-11 | Cl-12 | Cl-13 | Cl-14 | Cl-15 | Cl-16 | Cl-17 | Cl-18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C-9** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-9** |
| **C-10** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-10** |
| **C-11** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-11** |
| **C-12** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-12** |
| **C-13** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-13** |
| **C-14** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-14** |
| **C-15** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-15** |
| **C-16** | - | - | **100** | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-16** |
| **C-17** | - | - | **67.74** | 32.26 | - | - | - | - | - | - | - | - | - | - | - | - | **C-17** |
| **C-18** | - | 9.07 | **60.66** | 30.27 | - | - | - | - | - | - | - | - | - | - | - | - | **C-18** |
| **C-19** | - | 20.53 | **38.41** | 29.51 | 11.55 | - | - | - | - | - | - | - | - | - | - | - | **C-19** |
| **C-20** | - | 19.09 | **30.34** | 25.04 | 16.37 | 9.16 | - | - | - | - | - | - | - | - | - | - | **C-20** |
| **C-21** | - | 18.88 | **29.56** | 24.75 | 16.85 | 9.96 | - | - | - | - | - | - | - | - | - | - | **C-21** |
| **C-22** | - | 19.66 | **27.16** | 24.67 | 16.54 | 10.12 | 1.84 | - | - | - | - | - | - | - | - | - | **C-22** |
| **C-23** | - | 24.28 | **29.12** | 26.74 | 19.86 | - | - | - | - | - | - | - | - | - | - | - | **C-23** |
| **C-24** | - | 12.04 | **45.64** | 42.32 | - | - | - | - | - | - | - | - | - | - | - | - | **C-24** |
| **C-25** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-25** |
| **C-26** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-26** |
| **C-27** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-27** |
| **C-28** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-28** |
| **C-29** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-29** |
| **C-30** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | **C-30** |
| | **Cl-3** | **Cl-4** | **Cl-5** | **Cl-6** | **Cl-7** | **Cl-8** | **Cl-9** | **Cl-10** | **Cl-11** | **Cl-12** | **Cl-13** | **Cl-14** | **Cl-15** | **Cl-16** | **Cl-17** | **Cl-18** | |

**Table S13**. Chlorine- ($n_{Cl}$) numbers of CPs, COs, CdiOs and CtriOs compound classes for different carbon-chain lengths ($C_{10–30}$) in the sewage sludge (P1). Data were extracted and evaluated by CP-Hunter (top) and RASER (bottom).

| Name | Code | C-homologue | Chlorine number ($n_{Cl}$) | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Sewage sludge (By CP-Hunter) | P1 | $C_{10}$ | 6.37 | 5.82 | - | - |
| | | $C_{11}$ | 6.69 | 6.20 | 5.59 | - |
| | | $C_{12}$ | 6.96 | 6.48 | 5.67 | - |
| | | $C_{13}$ | 6.71 | 6.60 | 5.83 | - |
| | | $C_{14}$ | 6.03 | 5.74 | 5.10 | - |
| | | $C_{15}$ | 6.11 | 5.71 | 5.06 | 4.57 |
| | | $C_{16}$ | 6.31 | 5.83 | 5.15 | 4.62 |
| | | $C_{17}$ | 6.56 | 5.95 | 5.29 | 4.83 |
| | | $C_{18}$ | 7.01 | 6.26 | 5.68 | 5.00 |
| | | $C_{19}$ | 7.18 | 6.30 | 5.46 | 5.02 |
| | | $C_{20}$ | 7.13 | 6.21 | 5.30 | 5.16 |
| | | $C_{21}$ | 6.99 | 6.02 | 5.07 | 4.51 |
| | | $C_{22}$ | 7.02 | 5.95 | 5.04 | 4.47 |
| | | $C_{23}$ | 7.09 | 6.04 | 4.91 | 5.19 |
| | | $C_{24}$ | 7.27 | 6.10 | 4.90 | 4.45 |
| | | $C_{25}$ | 7.32 | 6.08 | - | - |
| | | $C_{26}$ | 7.58 | 6.60 | - | - |
| | | $C_{27}$ | 7.68 | 6.81 | - | - |
| | | $C_{28}$ | 7.77 | 7.09 | - | - |
| | | $C_{29}$ | 7.83 | 7.27 | - | - |
| | | $C_{30}$ | 7.89 | 7.67 | - | - |
| Sewage sludge (By RASER) | P1 | $C_{10}$ | 6.39 | 5.82 | - | - |
| | | $C_{11}$ | 6.70 | 6.22 | 5.00 | - |
| | | $C_{12}$ | 6.96 | 6.48 | 5.56 | - |
| | | $C_{13}$ | 6.71 | 6.61 | 5.65 | - |
| | | $C_{14}$ | 6.03 | 5.73 | 4.72 | 7.00 |
| | | $C_{15}$ | 6.12 | 5.72 | 5.07 | 4.56 |
| | | $C_{16}$ | 6.32 | 5.84 | 5.12 | 4.65 |
| | | $C_{17}$ | 6.56 | 5.96 | 5.19 | 4.65 |
| | | $C_{18}$ | 7.00 | 6.15 | 5.47 | 5.01 |
| | | $C_{19}$ | 7.18 | 5.85 | 5.21 | 4.66 |
| | | $C_{20}$ | 7.13 | 5.78 | 4.73 | 5.01 |
| | | $C_{21}$ | 7.07 | 5.26 | 4.00 | 4.54 |
| | | $C_{22}$ | 6.97 | 5.21 | 4.67 | 4.50 |
| | | $C_{23}$ | 7.12 | 5.26 | 4.60 | 4.51 |
| | | $C_{24}$ | 7.30 | 5.30 | - | 4.45 |
| | | $C_{25}$ | 7.43 | 5.33 | 4.00 | 4.00 |
| | | $C_{26}$ | 7.62 | 4.72 | - | - |
| | | $C_{27}$ | 7.75 | 5.00 | - | - |
| | | $C_{28}$ | 7.82 | - | - | - |
| | | $C_{29}$ | 7.86 | - | - | - |
| | | $C_{30}$ | 7.95 | - | - | - |

**Table S14**. Chlorine- ($n_{Cl}$) numbers of CPs, COs, CdiOs and CtriOs compound classes for different carbon-chain lengths ($C_{10–30}$) in the yoga mat (P2) and coating of an electronic cable (P3). Data were extracted and evaluated by CP-Hunter.

| Name | Code | C-homologue | Chlorine number ($n_{Cl}$) | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Yoga mat | P2 | $C_{10}$ | 6.15 | - | - | - |
| | | $C_{11}$ | 6.25 | 5.67 | - | - |
| | | $C_{12}$ | 6.40 | 5.82 | 5.00 | - |
| | | $C_{13}$ | 6.58 | 6.01 | 5.37 | - |
| | | $C_{14}$ | 6.85 | 6.24 | 5.53 | 5.11 |
| | | $C_{15}$ | 7.12 | 6.48 | 5.61 | 5.21 |
| | | $C_{16}$ | 7.31 | 6.69 | 5.78 | 5.32 |
| | | $C_{17}$ | 7.51 | 6.84 | 5.97 | 5.55 |
| | | $C_{18}$ | 7.67 | 6.88 | 6.03 | 5.68 |
| | | $C_{19}$ | 7.79 | 6.86 | 5.95 | - |
| | | $C_{20}$ | 7.68 | - | - | - |
| | | $C_{21}$ | - | - | - | - |
| | | $C_{22}$ | - | - | - | - |
| | | $C_{23}$ | - | - | - | - |
| | | $C_{24}$ | - | - | - | - |
| | | $C_{25}$ | - | - | - | - |
| | | $C_{26}$ | - | - | - | - |
| | | $C_{27}$ | - | - | - | - |
| | | $C_{28}$ | - | - | - | - |
| | | $C_{29}$ | - | - | - | - |
| | | $C_{30}$ | - | - | - | - |
| Coating of an electronic cable | P3 | $C_{10}$ | 6.21 | 5.67 | - | - |
| | | $C_{11}$ | 6.26 | 5.73 | - | - |
| | | $C_{12}$ | 6.35 | 5.83 | 5.00 | - |
| | | $C_{13}$ | 6.52 | 5.95 | 5.28 | - |
| | | $C_{14}$ | 6.66 | 6.04 | 5.39 | 5.00 |
| | | $C_{15}$ | 6.84 | 6.20 | 5.39 | 5.00 |
| | | $C_{16}$ | 6.96 | 6.29 | 5.56 | 5.00 |
| | | $C_{17}$ | 6.96 | 6.31 | 5.66 | 5.32 |
| | | $C_{18}$ | 6.80 | 6.27 | 5.81 | 5.21 |
| | | $C_{19}$ | 6.60 | 6.27 | 5.84 | 5.32 |
| | | $C_{20}$ | 6.57 | 6.36 | 5.99 | 5.66 |
| | | $C_{21}$ | 6.58 | 6.35 | 5.96 | 5.69 |
| | | $C_{22}$ | 6.64 | 6.45 | 6.00 | 5.76 |
| | | $C_{23}$ | 6.73 | 6.63 | 6.16 | 5.42 |
| | | $C_{24}$ | 6.86 | 6.85 | 6.45 | 5.30 |
| | | $C_{25}$ | 6.95 | 7.08 | 6.64 | - |
| | | $C_{26}$ | 7.07 | 7.04 | 6.99 | - |
| | | $C_{27}$ | 6.96 | 6.84 | - | - |
| | | $C_{28}$ | 6.44 | - | - | - |
| | | $C_{29}$ | - | - | - | - |
| | | $C_{30}$ | - | - | - | - |

**Table S15**. Carbon- ($n_C$) numbers of CPs, COs, CdiOs and CtriOs compound classes for different chlorination degrees ($Cl_{3–14}$) in the sewage sludge (P1). Data were extracted and evaluated by CP-Hunter (top) and RASER (bottom).

| Name | Code | Cl-homologue | Carbon number ($n_C$) | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Sewage sludge | P1 | $Cl_3$ | 22.53 | - | - | - |
| (By CP-Hunter) | | $Cl_4$ | 16.55 | 15.81 | 16.72 | 18.28 |
| | | $Cl_5$ | 15.54 | 15.18 | 16.34 | 18.11 |
| | | $Cl_6$ | 15.41 | 14.72 | 16.33 | 18.82 |
| | | $Cl_7$ | 15.69 | 14.76 | 17.14 | 20.00 |
| | | $Cl_8$ | 16.63 | 15.25 | - | - |
| | | $Cl_9$ | 18.24 | 17.38 | - | - |
| | | $Cl_{10}$ | 20.37 | - | - | - |
| | | $Cl_{11}$ | 23.28 | - | - | - |
| | | $Cl_{12}$ | 25.61 | - | - | - |
| | | $Cl_{13}$ | 26.00 | - | - | - |
| | | $Cl_{14}$ | - | - | - | - |
| Sewage sludge | P1 | $Cl_3$ | 21.38 | - | - | - |
| (By RASER) | | $Cl_4$ | 16.55 | 15.92 | 16.63 | 18.49 |
| | | $Cl_5$ | 15.54 | 15.16 | 16.31 | 18.04 |
| | | $Cl_6$ | 15.40 | 14.59 | 16.24 | 18.35 |
| | | $Cl_7$ | 15.67 | 14.34 | - | 14.00 |
| | | $Cl_8$ | 16.61 | 14.30 | - | - |
| | | $Cl_9$ | 18.27 | 13.97 | - | - |
| | | $Cl_{10}$ | 20.34 | - | - | - |
| | | $Cl_{11}$ | 23.50 | - | - | - |
| | | $Cl_{12}$ | 26.08 | - | - | - |
| | | $Cl_{13}$ | 25.47 | - | - | - |
| | | $Cl_{14}$ | 26.00 | - | - | - |

**Table S16**. Carbon- ($n_C$) numbers of CPs, COs, CdiOs and CtriOs compound classes for different chlorination degrees ($Cl_{3–14}$) in the yoga mat (P2) and coating of an electronic cable (P3).

| Name | Code | Cl-homologue | Carbon number ($n_C$) | | | |
|---|---|---|---|---|---|---|
| | | | CP | CO | CdiO | CtriO |
| Yoga mat | P2 | $Cl_3$ | - | - | - | - |
| | | $Cl_4$ | 14.53 | 14.53 | 15.03 | 16.00 |
| | | $Cl_5$ | 14.14 | 14.38 | 14.97 | 15.82 |
| | | $Cl_6$ | 14.14 | 14.49 | 15.20 | 16.36 |
| | | $Cl_7$ | 14.30 | 14.74 | 15.73 | 17.33 |
| | | $Cl_8$ | 14.58 | 15.14 | 17.36 | - |
| | | $Cl_9$ | 14.98 | 15.71 | - | - |
| | | $Cl_{10}$ | 15.48 | 16.25 | - | - |
| | | $Cl_{11}$ | 16.11 | 16.93 | - | - |
| | | $Cl_{12}$ | 16.91 | 16.00 | - | - |
| | | $Cl_{13}$ | 17.53 | - | - | - |
| | | $Cl_{14}$ | - | - | - | - |
| Coating of an electronic cable | P3 | $Cl_3$ | 21.85 | - | - | - |
| | | $Cl_4$ | 17.04 | 17.38 | 18.97 | 21.05 |
| | | $Cl_5$ | 15.29 | 16.22 | 17.75 | 19.68 |
| | | $Cl_6$ | 15.02 | 16.35 | 18.35 | 20.82 |
| | | $Cl_7$ | 15.14 | 17.08 | 20.05 | 21.13 |
| | | $Cl_8$ | 15.50 | 18.32 | 21.30 | 21.03 |
| | | $Cl_9$ | 16.13 | 19.66 | 21.72 | 22.00 |
| | | $Cl_{10}$ | 16.93 | 21.73 | 21.17 | - |
| | | $Cl_{11}$ | 17.69 | 19.00 | - | - |
| | | $Cl_{12}$ | 17.71 | - | - | - |
| | | $Cl_{13}$ | - | - | - | - |
| | | $Cl_{14}$ | - | - | - | - |

## REFERENCES

(1) Knobloch, M. C.; Mathis, F.; Diaz, O. M.; Stalder, U.; Bigler, L.; Kern, S.; Bleiner, D.; Heeb, N. V. Selective and Fast Analysis of Chlorinated Paraffins in the Presence of Chlorinated Mono-, Di-, and Tri-Olefins with the R-Based Automated Spectra Evaluation Routine (RASER). *Anal. Chem.* **2022**, *94* (40), 13777-13784. DOI: https://doi.org/10.1021/acs.analchem.2c02240.

(2) Mendo Diaz, O.; Tell, A.; Knobloch, M.; Canonica, E.; Walder, C.; Buser, A. M.; Stalder, U.; Bigler, L.; Kern, S.; Bleiner, D.; et al. Fingerprinting of chlorinated paraffins and their transformation products in plastic consumer products. *Chemosphere* **2023**, *338*, 139552. DOI: https://doi.org/10.1016/j.chemosphere.2023.139552.