**Table S1 Comparison of PAH, OPFR and PBDE concentrations in SRM 2585 (ng/g) in this study with NIST certified values and selected literature.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reference Value | | |  | This Study | | | |
|  | concentration  (ng.g-1) | ± | SD |  | concentration  (ng.g-1) | ± | SD | Accuracy |
|  |  |
| **PAHs** |  |  |  |  |  |  |  |  |
| Phe | 1920 | ± | 20 a |  | 1700 | ± | 83 | 0.89 |
| Ant | 96 | ± | 5.2 a |  | 71 | ± | 16 | 0.74 |
| Flu | 4380 | ± | 100 a |  | 5600 | ± | 580 | 1.27 |
| Pyr | 3290 | ± | 30 a |  | 4100 | ± | 530 | 1.25 |
| BaA + Chr | 3420 | ± | 114 a |  | 2400 | ± | 200 | 0.71 |
| BbF + BkF | 4030 | ± | 160 a |  | 3000 | ± | 420 | 0.74 |
| BeP | 2160 | ± | 80 a |  | 2500 | ± | 150 | 1.17 |
| BaP | 1140 | ± | 10 a |  | 1300 | ± | 73 | 1.16 |
| I123cdP | 2080 | ± | 100 a |  | 2100 | ± | 210 | 1.02 |
| DahA | 301 | ± | 50 a |  | 290 | ± | 23 | 0.96 |
| BghiP | 2280 | ± | 40 a |  | 2900 | ± | 230 | 1.29 |
| **OPFRs** |  |  |  |  |  |  |  |  |
| TnBP | 290 | ± | 12 b |  | 310 | ± | 48 | 1.07 |
| TCEP | 810 | ± | 41 b |  | 890 | ± | 170 | 1.1 |
| TCIPP | 750 | ± | 28 b |  | 1000 | ± | 110 | 1.36 |
| TDCIPP | 2500 | ± | 12 b |  | 1900 | ± | 310 | 0.78 |
| TBOEP | 81000 | ± | 1850 b |  | 84000 | ± | 11000 | 1.03 |
| TPhP | 890 | ± | 49 b |  | 1300 | ± | 360 | 1.42 |
| EHDPP | 1230 | ± | 23 b |  | 1200 | ± | 260 | 0.98 |
| TEHP | 1140 | ± | 85 b |  | 1200 | ± | 570 | 1.05 |
| TMPP | 1550 | ± | 150 b |  | 2200 | ± | 320 | 1.42 |
| **PBDEs** |  | ± |  |  |  | ± |  |  |
| BDE-28 | 49.9 | ± | 4.4 a |  | 66 | ± | 4.3 | 1.33 |
| BDE-47 | 497 | ± | 46 a |  | 450 | ± | 59 | 0.91 |
| BDE-100 | 145 | ± | 11 a |  | 170 | ± | 9.9 | 1.19 |
| BDE-99 | 892 | ± | 53 a |  | 1000 | ± | 160 | 1.16 |
| BDE-154 | 83.5 | ± | 2 a |  | 100 | ± | 17 | 1.25 |
| BDE-153 | 119 | ± | 1 a |  | 150 | ± | 14 | 1.22 |
| BDE-183 | 43 | ± | 3.5 a |  | 51 | ± | 9.9 | 1.18 |
| BDE-209 | 2510 | ± | 190 a |  | 2500 | ± | 670 | 0.99 |

a NIST SRM2585 Certified Values, b Brandsma et al. (2014)

**Table S2. The sampling rates for PAHs PBDEs and OPFRs used in this study.**

|  |  |
| --- | --- |
| Chemical | R compound specific sampling rate (m3.day-1) |
| Phe | 2.90a |
| Ant | 2.90 a |
| Flu | 1.33 a |
| Pyr | 1.69 a |
| BaA + Chr | 1.06 a |
| BbF + BkF | 0.69 a |
| BeP | 0.89 a |
| BaP | 0.82 a |
| I123cdP | 0.95 a |
| DahA | 1.26 a |
| BghiP | 1.56 a |
| OPFRs | 4.0 b |
| PBDEs | 3.5 b |

a Wang et al. (2019), b He et al. (2018)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Station Characteristics** | | | | | | | |
|  |  | Station Age | Age Renovation | Per Annum Fire Attendance | Fraction of Living Quarters Carpeted | Engine Bay - Drive Through | PPE stored in thoroughfare | PPE stored in separate room with closed doors | PPE stored outside of the station | |
| **Station Characteristics** | Station Age |  | 0.72 | -0.62 | 0.55 | -0.82 | 0.27 | -0.18 | -0.28 | |
| Age Renovation |  |  | -0.57 | 0.70 | -0.54 | 0.05 | -0.01 | -0.18 | |
| Per Annum Fire Attendance |  |  |  | -0.27 | 0.65 | -0.19 | 0.16 | 0.32 | |
| Fraction of Living Quarters Carpeted |  |  |  |  | -0.27 | 0.12 | -0.36 | 0.08 | |
| Engine Bay - Drive Through |  |  |  |  |  | -0.10 | 0.00 | 0.19 | |
| PPE stored in thoroughfare |  |  |  |  |  |  | -0.35 | -0.76 | |
| PPE stored in separate room with closed doors |  |  |  |  |  |  |  | -0.20 | |
| PPE stored outside of the station |  |  |  |  |  |  |  |  | |
| Green indicates Pearson correlation coefficient differed significantly from zero, p-value < 0.05. | | | | | | | | | |

**Table S3. Pearson correlation coefficients between station characteristics.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table S4. Pearson correlation coefficients between air concentrations of chemicals and station characteristics.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | **PAHs** | | | | | | | | | | | | **OPFRs** | | | | | | | | | | **PBDEs** | | | | | | | | | **Station Characteristics** | | | | | | | |
| **AIR** | | Phe | Ant | Flu | Pyr | Chr +BaA | BbF+BkF | BeP | BaP | I123cdP | DahA | BghiP | ∑13 PAHs | TnBP | TCEP | TCIPP | TDCIPP | TBOEP | TPhP | EHDPP | TEHP | TMPP | ∑9 OPFRs | BDE-28 | BDE-47 | BDE-100 | BDE-99 | BDE-154 | BDE-153 | BDE-183 | BDE-209 | ∑8 PBDE | Station Age | Age Renovation | Per Annum Fire Attendance | Fraction of Living Quarters Carpeted | Engine Bay - Drive Through | PPE stored in thoroughfare | PPE stored in separate room with closed doors | PPE stored outside of the station |
| **PAHs** | Phe |  | 0.89 | 0.53 | 0.49 | 0.22 | 0.05 | 0.05 | 0.01 | 0.10 | -0.08 | 0.08 | 0.92 | 0.37 | -0.32 | -0.36 | -0.23 | -0.02 | -0.52 | -0.11 | 0.01 | 0.11 | -0.38 | -0.09 | -0.22 | -0.08 | -0.09 | -0.04 | -0.40 | 0.25 | -0.06 | -0.10 | -0.49 | -0.40 | 0.48 | -0.25 | 0.37 | 0.13 | 0.01 | 0.09 |
| Ant |  |  | 0.40 | 0.43 | 0.18 | 0.06 | 0.08 | -0.02 | 0.05 | 0.02 | 0.06 | 0.80 | 0.25 | -0.54 | -0.30 | -0.27 | -0.05 | -0.48 | 0.11 | -0.07 | -0.06 | -0.37 | -0.18 | -0.22 | 0.01 | 0.02 | 0.09 | -0.28 | 0.25 | -0.08 | -0.15 | -0.59 | -0.43 | 0.69 | -0.34 | 0.46 | -0.07 | 0.29 | 0.16 |
| Flu |  |  |  | 0.47 | 0.09 | -0.22 | -0.25 | -0.07 | 0.06 | -0.19 | 0.10 | 0.73 | 0.45 | -0.24 | -0.33 | -0.19 | -0.06 | -0.53 | -0.01 | 0.02 | 0.61 | -0.38 | -0.52 | -0.31 | -0.15 | -0.37 | -0.40 | -0.62 | -0.13 | -0.42 | -0.57 | 0.00 | -0.16 | 0.33 | 0.17 | 0.01 | 0.35 | -0.34 | 0.06 |
| Pyr |  |  |  |  | 0.78 | 0.49 | 0.45 | 0.42 | 0.44 | 0.51 | 0.46 | 0.75 | -0.04 | 0.08 | -0.05 | -0.12 | 0.04 | -0.26 | -0.38 | -0.07 | -0.09 | -0.06 | -0.35 | 0.31 | 0.39 | 0.27 | 0.31 | -0.15 | 0.26 | 0.23 | -0.01 | 0.40 | 0.21 | 0.18 | 0.18 | -0.29 | 0.12 | -0.07 | 0.04 |
| BaA + Chr |  |  |  |  |  | 0.84 | 0.82 | 0.75 | 0.76 | 0.80 | 0.77 | 0.40 | 0.00 | 0.35 | 0.12 | 0.07 | 0.21 | 0.07 | -0.41 | -0.03 | -0.14 | 0.19 | -0.17 | 0.55 | 0.33 | 0.33 | 0.41 | -0.01 | 0.42 | 0.33 | 0.16 | 0.34 | 0.29 | 0.16 | 0.22 | -0.07 | -0.01 | -0.12 | 0.15 |
| BbF + BkF |  |  |  |  |  |  | 0.99 | 0.91 | 0.88 | 0.91 | 0.86 | 0.12 | -0.06 | 0.50 | 0.26 | 0.21 | 0.19 | 0.14 | -0.27 | -0.06 | -0.22 | 0.37 | 0.10 | 0.59 | 0.39 | 0.45 | 0.54 | 0.21 | 0.44 | 0.44 | 0.41 | 0.18 | 0.16 | 0.19 | -0.09 | 0.09 | -0.05 | 0.00 | 0.02 |
| BeP |  |  |  |  |  |  |  | 0.92 | 0.90 | 0.90 | 0.88 | 0.10 | -0.01 | 0.43 | 0.23 | 0.26 | 0.18 | 0.17 | -0.20 | -0.02 | -0.23 | 0.34 | 0.13 | 0.58 | 0.32 | 0.40 | 0.49 | 0.20 | 0.44 | 0.46 | 0.42 | 0.12 | 0.11 | 0.23 | -0.14 | 0.17 | -0.08 | 0.00 | 0.06 |
| BaP |  |  |  |  |  |  |  |  | 0.97 | 0.80 | 0.94 | 0.10 | 0.07 | 0.37 | 0.14 | 0.27 | 0.13 | 0.15 | -0.14 | 0.06 | 0.01 | 0.24 | 0.02 | 0.43 | 0.13 | 0.16 | 0.23 | -0.02 | 0.27 | 0.37 | 0.25 | 0.13 | -0.02 | 0.25 | -0.17 | 0.16 | -0.01 | -0.28 | 0.13 |
| I123cdP |  |  |  |  |  |  |  |  |  | 0.75 | 0.99 | 0.20 | 0.26 | 0.36 | 0.04 | 0.24 | 0.07 | 0.01 | -0.11 | -0.02 | 0.10 | 0.16 | 0.03 | 0.38 | 0.02 | 0.05 | 0.12 | -0.15 | 0.27 | 0.24 | 0.21 | 0.09 | -0.01 | 0.32 | -0.10 | 0.24 | -0.02 | -0.29 | 0.21 |
| DahA |  |  |  |  |  |  |  |  |  |  | 0.78 | 0.06 | -0.15 | 0.46 | 0.48 | 0.34 | 0.37 | 0.32 | -0.10 | 0.09 | -0.15 | 0.56 | -0.18 | 0.60 | 0.54 | 0.58 | 0.68 | 0.37 | 0.48 | 0.50 | 0.23 | 0.32 | 0.21 | 0.16 | -0.09 | -0.04 | 0.11 | 0.12 | -0.19 |
| BghiP |  |  |  |  |  |  |  |  |  |  |  | 0.21 | 0.28 | 0.35 | 0.08 | 0.24 | 0.14 | 0.04 | -0.07 | -0.02 | 0.16 | 0.19 | -0.04 | 0.36 | 0.03 | 0.05 | 0.12 | -0.17 | 0.28 | 0.22 | 0.13 | 0.11 | -0.03 | 0.32 | -0.09 | 0.24 | 0.00 | -0.24 | 0.18 |
| ∑13 PAHs |  |  |  |  |  |  |  |  |  |  |  |  | 0.33 | -0.24 | -0.32 | -0.23 | -0.03 | -0.56 | -0.19 | -0.02 | 0.17 | -0.35 | -0.29 | -0.11 | 0.04 | -0.06 | -0.03 | -0.44 | 0.21 | -0.08 | -0.20 | -0.17 | -0.19 | 0.43 | -0.03 | 0.13 | 0.21 | -0.09 | 0.08 |
| **OPFRs** | TnBP |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.01 | -0.48 | 0.27 | 0.08 | -0.15 | 0.31 | 0.21 | 0.67 | -0.29 | 0.10 | -0.34 | -0.54 | -0.52 | -0.51 | -0.48 | 0.32 | -0.07 | -0.13 | -0.30 | -0.34 | 0.39 | -0.02 | 0.47 | 0.27 | -0.20 | 0.11 |
| TCEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.38 | 0.38 | 0.38 | 0.32 | -0.36 | 0.08 | 0.03 | 0.61 | 0.29 | 0.51 | 0.40 | 0.39 | 0.42 | 0.46 | 0.33 | 0.44 | 0.46 | 0.57 | 0.46 | -0.42 | 0.31 | -0.30 | 0.43 | -0.20 | -0.44 |
| TCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.45 | 0.58 | 0.51 | 0.03 | 0.29 | -0.24 | 0.94 | -0.21 | 0.59 | 0.50 | 0.61 | 0.59 | 0.69 | 0.05 | 0.23 | 0.08 | 0.30 | 0.35 | -0.38 | 0.07 | -0.08 | 0.43 | 0.00 | -0.61 |
| TDCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.46 | 0.50 | 0.29 | 0.67 | 0.21 | 0.60 | 0.02 | 0.32 | 0.02 | 0.21 | 0.17 | 0.45 | 0.54 | 0.44 | 0.16 | 0.23 | 0.23 | -0.23 | -0.03 | 0.02 | 0.61 | -0.16 | -0.53 |
| TBOEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.58 | -0.06 | 0.47 | 0.18 | 0.62 | -0.11 | 0.35 | 0.36 | 0.48 | 0.41 | 0.48 | 0.49 | 0.44 | 0.04 | 0.14 | -0.03 | -0.02 | 0.06 | 0.12 | 0.66 | -0.05 | -0.64 |
| TPhP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.28 | 0.63 | -0.03 | 0.59 | -0.08 | 0.27 | 0.08 | 0.24 | 0.33 | 0.49 | 0.21 | 0.64 | 0.10 | 0.23 | 0.03 | -0.24 | 0.08 | -0.05 | 0.28 | -0.06 | -0.29 |
| EHDPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.35 | 0.26 | 0.06 | -0.29 | -0.42 | -0.43 | -0.37 | -0.18 | -0.10 | -0.15 | 0.06 | -0.34 | -0.38 | -0.47 | 0.35 | -0.33 | 0.36 | 0.07 | 0.09 | 0.07 |
| TEHP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.27 | 0.34 | -0.18 | 0.17 | -0.02 | 0.10 | 0.10 | 0.27 | 0.33 | 0.50 | 0.00 | 0.01 | -0.09 | -0.01 | 0.03 | 0.15 | 0.64 | -0.22 | -0.48 |
| TMPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.14 | -0.39 | -0.53 | -0.38 | -0.52 | -0.51 | -0.52 | 0.09 | -0.25 | -0.59 | -0.07 | -0.35 | 0.13 | -0.13 | 0.08 | 0.45 | -0.29 | -0.11 |
| ∑9 OPFRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.11 | 0.58 | 0.45 | 0.57 | 0.61 | 0.70 | 0.22 | 0.38 | 0.17 | 0.37 | 0.37 | -0.40 | 0.09 | -0.11 | 0.53 | -0.05 | -0.63 |
| **PBDEs** | BDE-28 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.25 | -0.06 | 0.10 | -0.05 | 0.25 | 0.11 | 0.21 | 0.85 | -0.13 | 0.04 | -0.13 | -0.02 | 0.23 | -0.23 | 0.09 | -0.01 |
| BDE-47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.60 | 0.71 | 0.59 | 0.63 | 0.25 | 0.38 | 0.61 | 0.46 | 0.63 | -0.20 | 0.44 | -0.03 | 0.14 | -0.01 | -0.34 |
| BDE-100 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.93 | 0.86 | 0.70 | 0.36 | 0.34 | 0.34 | 0.41 | 0.43 | -0.08 | 0.09 | -0.37 | 0.20 | 0.45 | -0.59 |
| BDE-99 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.91 | 0.85 | 0.49 | 0.47 | 0.50 | 0.31 | 0.42 | -0.10 | 0.04 | -0.20 | 0.20 | 0.47 | -0.63 |
| BDE-154 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.78 | 0.47 | 0.56 | 0.38 | 0.24 | 0.32 | -0.01 | -0.02 | -0.19 | 0.16 | 0.44 | -0.48 |
| BDE-153 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.39 | 0.54 | 0.54 | 0.30 | 0.44 | -0.30 | 0.09 | -0.19 | 0.28 | 0.36 | -0.68 |
| BDE-183 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.51 | 0.29 | 0.06 | 0.13 | 0.13 | -0.13 | 0.03 | 0.34 | 0.34 | -0.41 |
| BDE-209 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.55 | 0.28 | -0.03 | -0.04 | -0.11 | -0.14 | 0.31 | 0.07 | -0.36 |
| ∑8 PBDE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.14 | 0.23 | -0.14 | 0.04 | 0.07 | -0.09 | 0.20 | -0.23 |

Green indicates Pearson correlation coefficient differed significantly from zero, p-value < 0.05.

\*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table S5. Pearson correlation coefficients between living quarter dust concentrations of chemicals and station characteristics.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | **PAHs** | | | | | | | | | | | | **OPFRs** | | | | | | | | | | **PBDEs** | | | | | | | | | **Station Characteristics** | | | | | | | |
| **Living Quarters** | | Phe | Ant | Flu | Pyr | Chr +BaA | BbF+BkF | BeP | BaP | I123cdP | DahA | BghiP | ∑13 PAHs | TnBP | TCEP | TCIPP | TDCIPP | TBOEP | TPhP | EHDPP | TEHP | TMPP | ∑9 OPFRs | BDE-28 | BDE-47 | BDE-100 | BDE-99 | BDE-154 | BDE-153 | BDE-183 | BDE-209 | ∑8 PBDE | Station Age | Age Renovation | Per Annum Fire Attendance | Fraction of Living Quarters Carpeted | Engine Bay - Drive Through | PPE stored in thoroughfare | PPE stored in separate room with closed doors | PPE stored outside of the station |
| **PAHs** | Phe |  | 0.73 | 0.86 | 0.85 | 0.90 | 0.63 | 0.94 | 0.90 | 0.95 | 0.64 | 0.87 | 0.97 | 0.75 | 0.53 | 0.20 | 0.64 | 0.20 | 0.24 | -0.28 | 0.14 | 0.26 | 0.01 | 0.23 | 0.23 | 0.54 | 0.56 | 0.51 | 0.61 | 0.36 | 0.03 | 0.21 | 0.44 | 0.79 | -0.43 | 0.37 | -0.37 | -0.24 | 0.03 | 0.01 |
| Ant |  |  | 0.41 | 0.38 | 0.55 | 0.16 | 0.72 | 0.57 | 0.66 | 0.21 | 0.55 | 0.63 | 0.29 | 0.45 | 0.00 | 0.48 | 0.26 | 0.35 | 0.12 | 0.09 | 0.48 | 0.33 | 0.16 | 0.19 | 0.23 | 0.24 | 0.20 | 0.24 | 0.30 | -0.26 | -0.07 | 0.01 | 0.28 | -0.09 | -0.19 | -0.09 | -0.17 | 0.12 | 0.00 |
| Flu |  |  |  | 0.95 | 0.91 | 0.69 | 0.78 | 0.83 | 0.86 | 0.66 | 0.78 | 0.93 | 0.83 | 0.43 | 0.37 | 0.60 | 0.19 | 0.23 | -0.37 | 0.13 | 0.19 | -0.05 | 0.25 | 0.46 | 0.63 | 0.66 | 0.68 | 0.73 | 0.47 | 0.24 | 0.43 | 0.59 | 0.85 | -0.70 | 0.41 | -0.56 | -0.06 | -0.01 | -0.18 |
| Pyr |  |  |  |  | 0.86 | 0.75 | 0.77 | 0.83 | 0.87 | 0.76 | 0.84 | 0.92 | 0.88 | 0.46 | 0.24 | 0.68 | 0.19 | 0.14 | -0.51 | 0.18 | 0.15 | -0.20 | 0.25 | 0.39 | 0.70 | 0.76 | 0.74 | 0.77 | 0.48 | 0.27 | 0.49 | 0.63 | 0.80 | -0.68 | 0.41 | -0.57 | -0.02 | -0.10 | -0.24 |
| BaA + Chr |  |  |  |  |  | 0.57 | 0.77 | 0.74 | 0.82 | 0.52 | 0.70 | 0.92 | 0.64 | 0.56 | 0.27 | 0.50 | 0.40 | 0.41 | -0.22 | -0.12 | 0.46 | 0.12 | 0.16 | 0.30 | 0.49 | 0.53 | 0.52 | 0.55 | 0.43 | 0.18 | 0.37 | 0.56 | 0.80 | -0.64 | 0.44 | -0.42 | 0.00 | -0.04 | -0.20 |
| BbF + BkF |  |  |  |  |  |  | 0.66 | 0.73 | 0.74 | 0.97 | 0.81 | 0.72 | 0.84 | 0.35 | -0.14 | 0.40 | 0.01 | -0.07 | -0.81 | 0.30 | -0.19 | -0.57 | 0.33 | 0.30 | 0.74 | 0.73 | 0.69 | 0.66 | 0.04 | 0.01 | 0.21 | 0.54 | 0.63 | -0.25 | 0.45 | -0.43 | -0.06 | -0.04 | -0.14 |
| BeP |  |  |  |  |  |  |  | 0.94 | 0.97 | 0.71 | 0.92 | 0.93 | 0.69 | 0.56 | 0.04 | 0.66 | 0.03 | 0.06 | -0.33 | 0.16 | 0.12 | -0.12 | 0.12 | 0.25 | 0.46 | 0.47 | 0.45 | 0.51 | 0.18 | -0.15 | 0.00 | 0.31 | 0.65 | -0.27 | 0.23 | -0.25 | -0.35 | 0.01 | 0.14 |
| BaP |  |  |  |  |  |  |  |  | 0.96 | 0.77 | 0.91 | 0.93 | 0.82 | 0.45 | 0.10 | 0.67 | -0.09 | -0.09 | -0.47 | 0.18 | -0.10 | -0.28 | 0.19 | 0.27 | 0.54 | 0.55 | 0.57 | 0.64 | 0.22 | -0.13 | 0.04 | 0.48 | 0.74 | -0.33 | 0.29 | -0.37 | -0.27 | 0.02 | 0.04 |
| I123cdP |  |  |  |  |  |  |  |  |  | 0.78 | 0.96 | 0.97 | 0.79 | 0.57 | 0.06 | 0.67 | 0.06 | 0.09 | -0.44 | 0.17 | 0.11 | -0.18 | 0.18 | 0.34 | 0.59 | 0.61 | 0.57 | 0.62 | 0.28 | -0.10 | 0.10 | 0.44 | 0.71 | -0.40 | 0.24 | -0.38 | -0.27 | 0.03 | 0.00 |
| DahA |  |  |  |  |  |  |  |  |  |  | 0.86 | 0.72 | 0.83 | 0.33 | -0.23 | 0.48 | -0.10 | -0.17 | -0.85 | 0.31 | -0.23 | -0.66 | 0.28 | 0.31 | 0.71 | 0.72 | 0.65 | 0.62 | 0.03 | -0.14 | 0.04 | 0.51 | 0.57 | -0.25 | 0.35 | -0.42 | -0.14 | -0.10 | -0.07 |
| BghiP |  |  |  |  |  |  |  |  |  |  |  | 0.90 | 0.85 | 0.60 | 0.01 | 0.63 | 0.00 | 0.08 | -0.51 | 0.36 | -0.03 | -0.27 | 0.18 | 0.26 | 0.68 | 0.69 | 0.60 | 0.67 | 0.28 | -0.14 | 0.10 | 0.36 | 0.62 | -0.30 | 0.19 | -0.37 | -0.38 | 0.10 | 0.03 |
| ∑13 PAHs |  |  |  |  |  |  |  |  |  |  |  |  | 0.81 | 0.55 | 0.18 | 0.66 | 0.18 | 0.20 | -0.39 | 0.12 | 0.22 | -0.09 | 0.21 | 0.33 | 0.60 | 0.63 | 0.61 | 0.66 | 0.36 | 0.03 | 0.23 | 0.52 | 0.81 | -0.52 | 0.36 | -0.44 | -0.16 | 0.00 | -0.08 |
| **OPFRs** | TnBP |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.32 | 0.26 | 0.63 | 0.06 | 0.02 | -0.58 | 0.51 | -0.19 | -0.31 | 0.47 | 0.32 | 0.82 | 0.83 | 0.84 | 0.91 | 0.42 | 0.17 | 0.44 | 0.51 | 0.76 | -0.41 | 0.38 | -0.52 | -0.11 | 0.08 | -0.20 |
| TCEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.06 | 0.20 | 0.31 | 0.39 | 0.08 | -0.04 | 0.22 | 0.17 | -0.03 | -0.08 | 0.25 | 0.27 | 0.32 | 0.23 | 0.28 | -0.26 | -0.08 | 0.04 | 0.13 | -0.09 | -0.10 | -0.03 | -0.38 | 0.33 | -0.03 |
| TCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.26 | 0.32 | 0.23 | 0.39 | 0.32 | 0.03 | 0.60 | 0.15 | 0.20 | 0.26 | 0.22 | 0.25 | 0.50 | 0.51 | 0.52 | 0.71 | 0.08 | 0.46 | -0.32 | 0.24 | -0.20 | 0.08 | 0.33 | -0.22 |
| TDCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.09 | -0.23 | -0.24 | 0.34 | 0.10 | -0.11 | 0.20 | 0.22 | 0.46 | 0.54 | 0.60 | 0.61 | 0.27 | -0.04 | 0.11 | 0.19 | 0.54 | -0.25 | 0.21 | -0.12 | 0.11 | -0.27 | -0.16 |
| TBOEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.48 | 0.20 | -0.04 | 0.54 | 0.55 | 0.45 | 0.24 | 0.30 | 0.31 | 0.36 | 0.28 | 0.47 | 0.46 | 0.59 | -0.01 | 0.13 | -0.24 | 0.18 | -0.03 | 0.43 | 0.04 | -0.52 |
| TPhP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.36 | -0.03 | 0.69 | 0.64 | 0.03 | 0.07 | 0.19 | 0.18 | 0.01 | 0.10 | 0.54 | 0.02 | 0.24 | -0.08 | 0.05 | -0.30 | -0.18 | -0.13 | -0.09 | 0.36 | -0.17 |
| EHDPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.11 | 0.31 | 0.86 | -0.25 | -0.35 | -0.56 | -0.59 | -0.48 | -0.41 | 0.16 | 0.02 | 0.09 | -0.54 | -0.39 | 0.25 | -0.35 | 0.36 | -0.14 | 0.30 | 0.18 |
| TEHP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.35 | 0.00 | 0.38 | 0.13 | 0.57 | 0.49 | 0.40 | 0.58 | 0.24 | 0.23 | 0.43 | -0.14 | 0.13 | 0.17 | -0.04 | -0.22 | -0.23 | 0.34 | 0.01 |
| TMPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.54 | -0.14 | 0.12 | -0.06 | 0.00 | -0.12 | -0.15 | 0.32 | 0.14 | 0.19 | 0.02 | 0.06 | -0.40 | -0.04 | -0.05 | 0.27 | -0.22 | -0.19 |
| ∑9 OPFRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.03 | -0.05 | -0.18 | -0.23 | -0.21 | -0.08 | 0.45 | 0.30 | 0.50 | -0.37 | -0.10 | -0.01 | -0.21 | 0.14 | 0.01 | 0.35 | -0.07 |
| **PBDEs** | BDE-28 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.39 | 0.56 | 0.54 | 0.69 | 0.62 | 0.26 | 0.16 | 0.33 | 0.02 | 0.24 | -0.10 | 0.15 | -0.11 | 0.25 | 0.15 | -0.44 |
| BDE-47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.57 | 0.54 | 0.45 | 0.45 | 0.16 | 0.24 | 0.43 | 0.28 | 0.32 | -0.58 | -0.10 | -0.43 | 0.31 | 0.15 | -0.52 |
| BDE-100 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.98 | 0.82 | 0.91 | 0.35 | 0.15 | 0.52 | 0.36 | 0.57 | -0.37 | 0.18 | -0.43 | 0.11 | 0.31 | -0.54 |
| BDE-99 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.86 | 0.90 | 0.41 | 0.11 | 0.49 | 0.37 | 0.57 | -0.44 | 0.17 | -0.41 | 0.16 | 0.19 | -0.57 |
| BDE-154 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.91 | 0.46 | 0.08 | 0.36 | 0.36 | 0.53 | -0.36 | 0.20 | -0.35 | 0.28 | 0.08 | -0.59 |
| BDE-153 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.53 | 0.20 | 0.53 | 0.36 | 0.68 | -0.39 | 0.26 | -0.42 | 0.10 | 0.25 | -0.47 |
| BDE-183 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.31 | 0.47 | 0.12 | 0.21 | -0.50 | -0.10 | -0.39 | 0.05 | 0.05 | -0.24 |
| BDE-209 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.91 | 0.50 | 0.38 | -0.61 | 0.62 | -0.63 | 0.21 | -0.21 | -0.04 |
| ∑8 PBDE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.50 | 0.52 | -0.72 | 0.48 | -0.68 | 0.17 | 0.18 | -0.30 |

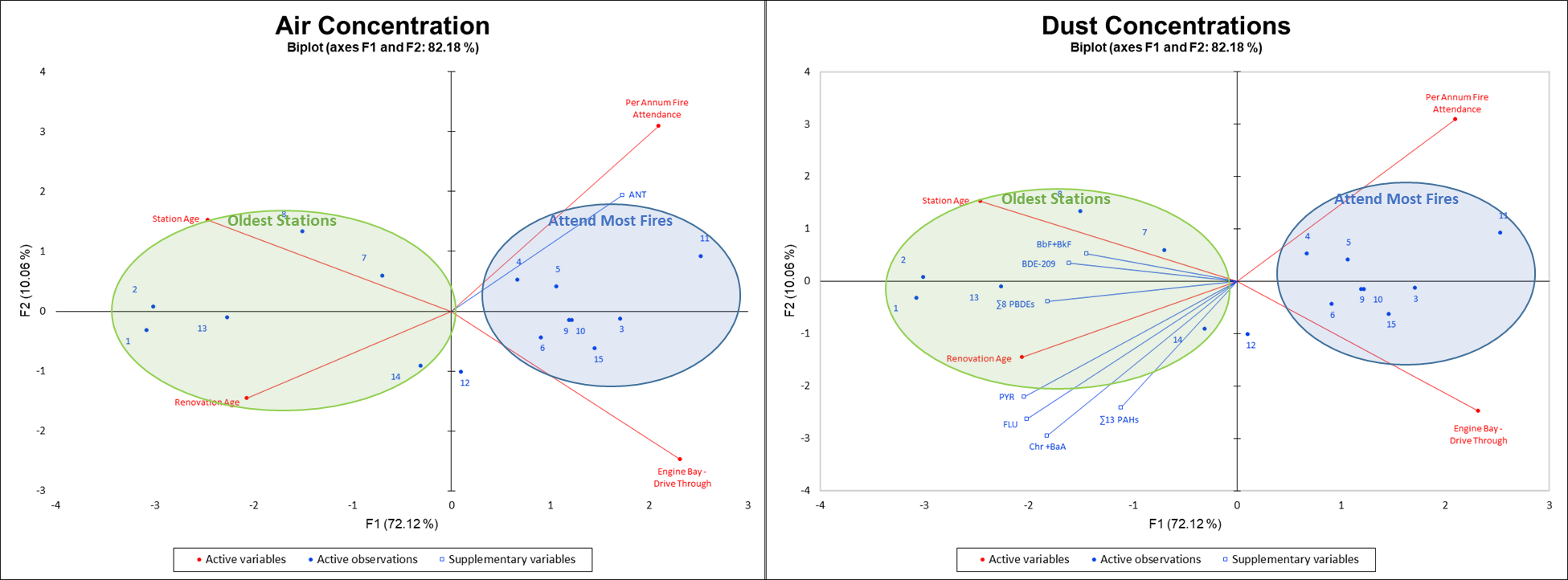
Green indicates Pearson correlation coefficient differed significantly from zero, p-value < 0.05.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table S6. Pearson correlation coefficients between fire engine dust concentrations of chemicals and station characteristics.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Fire Engine Cabins** | | **PAHs** | | | | | | | | | | | | **OPFRs** | | | | | | | | | | **PBDEs** | | | | | | | | | **Station Characteristics** | | | | | | | |
| Phe | Ant | Flu | Pyr | Chr +BaA | BbF+BkF | BeP | BaP | I123cdP | DahA | BghiP | ∑13 PAHs | TnBP | TCEP | TCIPP | TDCIPP | TBOEP | TPhP | EHDPP | TEHP | TMPP | ∑9 OPFRs | BDE-28 | BDE-47 | BDE-100 | BDE-99 | BDE-154 | BDE-153 | BDE-183 | BDE-209 | ∑8 PBDE | Station Age | Age Renovation | Per Annum Fire Attendance | Fraction of Living Quarters Carpeted | Engine Bay - Drive Through | PPE stored in thoroughfare | PPE stored in separate room with closed doors | PPE stored outside of the station |
| **PAHs** | Phe |  | 0.32 | 0.47 | 0.60 | 0.12 | 0.48 | 0.47 | 0.48 | 0.52 | 0.57 | 0.47 | 0.77 | 0.04 | -0.07 | 0.11 | 0.51 | 0.26 | -0.14 | 0.12 | 0.44 | -0.05 | 0.30 | -0.03 | -0.12 | 0.08 | 0.12 | 0.10 | 0.09 | -0.10 | -0.18 | -0.16 | -0.23 | -0.16 | 0.49 | -0.29 | 0.33 | -0.44 | 0.29 | 0.16 |
| Ant |  |  | 0.20 | 0.20 | -0.25 | 0.33 | 0.21 | 0.33 | 0.29 | 0.45 | 0.31 | 0.35 | 0.18 | -0.35 | 0.04 | -0.09 | 0.29 | 0.22 | 0.38 | 0.15 | -0.46 | 0.03 | -0.21 | -0.10 | -0.04 | -0.09 | -0.09 | -0.02 | -0.10 | -0.08 | -0.09 | -0.21 | -0.37 | 0.19 | -0.19 | 0.16 | 0.06 | 0.39 | -0.23 |
| Flu |  |  |  | 0.96 | 0.23 | 0.86 | 0.78 | 0.86 | 0.84 | 0.84 | 0.81 | 0.86 | 0.35 | 0.14 | 0.46 | 0.21 | 0.26 | -0.34 | -0.10 | 0.35 | -0.05 | 0.33 | 0.01 | 0.18 | 0.23 | 0.30 | 0.29 | 0.27 | 0.49 | 0.17 | 0.21 | -0.26 | -0.15 | 0.05 | -0.53 | 0.03 | -0.16 | 0.35 | -0.06 |
| Pyr |  |  |  |  | 0.31 | 0.84 | 0.79 | 0.86 | 0.82 | 0.80 | 0.79 | 0.92 | 0.25 | 0.11 | 0.32 | 0.22 | 0.27 | -0.46 | -0.17 | 0.32 | -0.11 | 0.23 | 0.05 | 0.15 | 0.25 | 0.32 | 0.32 | 0.31 | 0.37 | 0.14 | 0.18 | -0.16 | -0.10 | 0.07 | -0.44 | 0.03 | -0.20 | 0.24 | -0.03 |
| BaA + Chr |  |  |  |  |  | 0.27 | 0.33 | 0.23 | 0.25 | 0.24 | 0.30 | 0.30 | 0.28 | 0.02 | 0.16 | 0.05 | -0.04 | -0.13 | -0.24 | 0.08 | 0.01 | 0.11 | 0.31 | 0.23 | 0.12 | 0.27 | 0.33 | 0.36 | 0.25 | 0.33 | 0.36 | 0.05 | 0.15 | -0.37 | -0.25 | -0.03 | -0.08 | -0.11 | -0.26 |
| BbF + BkF |  |  |  |  |  |  | 0.94 | 0.96 | 0.98 | 0.92 | 0.95 | 0.91 | 0.32 | 0.00 | 0.37 | 0.17 | 0.30 | -0.18 | -0.06 | 0.24 | -0.10 | 0.26 | -0.03 | 0.30 | 0.31 | 0.37 | 0.36 | 0.34 | 0.51 | 0.25 | 0.28 | -0.29 | -0.08 | -0.01 | -0.40 | 0.13 | -0.28 | 0.46 | -0.08 |
| BeP |  |  |  |  |  |  |  | 0.91 | 0.94 | 0.83 | 0.92 | 0.88 | 0.31 | 0.19 | 0.36 | 0.11 | 0.23 | -0.18 | -0.08 | 0.17 | -0.11 | 0.24 | 0.11 | 0.43 | 0.46 | 0.53 | 0.55 | 0.50 | 0.53 | 0.29 | 0.35 | -0.29 | -0.02 | -0.05 | -0.28 | 0.25 | -0.36 | 0.35 | 0.02 |
| BaP |  |  |  |  |  |  |  |  | 0.97 | 0.88 | 0.90 | 0.91 | 0.30 | -0.10 | 0.30 | 0.15 | 0.35 | -0.32 | 0.00 | 0.26 | -0.19 | 0.20 | -0.17 | 0.21 | 0.17 | 0.22 | 0.26 | 0.24 | 0.37 | 0.12 | 0.14 | -0.17 | -0.04 | -0.05 | -0.33 | 0.02 | -0.32 | 0.35 | 0.01 |
| I123cdP |  |  |  |  |  |  |  |  |  | 0.90 | 0.97 | 0.91 | 0.33 | -0.03 | 0.38 | 0.24 | 0.34 | -0.17 | -0.04 | 0.29 | -0.06 | 0.31 | -0.10 | 0.31 | 0.27 | 0.34 | 0.39 | 0.33 | 0.47 | 0.22 | 0.24 | -0.29 | -0.09 | 0.00 | -0.39 | 0.13 | -0.36 | 0.46 | -0.02 |
| DahA |  |  |  |  |  |  |  |  |  |  | 0.90 | 0.89 | 0.32 | -0.01 | 0.45 | 0.22 | 0.31 | -0.05 | 0.13 | 0.29 | -0.10 | 0.39 | -0.06 | 0.11 | 0.24 | 0.29 | 0.26 | 0.26 | 0.45 | 0.20 | 0.21 | -0.43 | -0.29 | 0.21 | -0.59 | 0.27 | -0.29 | 0.50 | -0.03 |
| BghiP |  |  |  |  |  |  |  |  |  |  |  | 0.88 | 0.32 | 0.04 | 0.41 | 0.18 | 0.34 | -0.08 | -0.10 | 0.21 | -0.03 | 0.32 | -0.04 | 0.38 | 0.40 | 0.48 | 0.55 | 0.47 | 0.55 | 0.38 | 0.41 | -0.40 | -0.23 | 0.01 | -0.47 | 0.21 | -0.31 | 0.43 | -0.04 |
| ∑13 PAHs |  |  |  |  |  |  |  |  |  |  |  |  | 0.26 | 0.02 | 0.32 | 0.30 | 0.32 | -0.28 | -0.02 | 0.35 | -0.15 | 0.30 | 0.01 | 0.16 | 0.26 | 0.33 | 0.34 | 0.31 | 0.32 | 0.10 | 0.14 | -0.28 | -0.14 | 0.17 | -0.42 | 0.20 | -0.38 | 0.36 | 0.04 |
| **OPFRs** | TnBP |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.05 | 0.46 | 0.11 | 0.18 | 0.05 | 0.35 | 0.57 | -0.18 | 0.41 | -0.09 | 0.19 | -0.27 | -0.10 | 0.04 | -0.03 | 0.09 | -0.19 | -0.18 | -0.30 | -0.03 | -0.22 | -0.36 | 0.12 | -0.21 | 0.43 | -0.28 |
| TCEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.27 | -0.02 | -0.15 | 0.06 | 0.00 | -0.05 | 0.07 | 0.21 | 0.63 | 0.31 | 0.60 | 0.61 | 0.49 | 0.40 | 0.42 | 0.29 | 0.38 | -0.42 | -0.23 | 0.15 | -0.18 | 0.53 | -0.05 | -0.18 | 0.27 |
| TCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.30 | 0.05 | 0.40 | 0.23 | 0.43 | 0.35 | 0.88 | 0.23 | 0.41 | 0.14 | 0.29 | 0.38 | 0.32 | 0.67 | 0.03 | 0.10 | -0.21 | 0.01 | -0.14 | -0.22 | 0.09 | -0.04 | 0.25 | -0.13 |
| TDCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.65 | 0.18 | 0.26 | 0.70 | 0.66 | 0.66 | 0.13 | 0.23 | 0.05 | 0.07 | 0.08 | 0.12 | 0.10 | 0.05 | 0.05 | -0.14 | -0.14 | 0.20 | -0.22 | 0.22 | 0.03 | -0.02 | -0.14 |
| TBOEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.06 | 0.37 | 0.57 | 0.27 | 0.33 | -0.06 | 0.33 | 0.10 | 0.05 | 0.11 | 0.19 | 0.04 | 0.16 | 0.14 | -0.22 | -0.34 | 0.08 | -0.19 | 0.26 | 0.28 | -0.22 | -0.22 |
| TPhP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.25 | 0.02 | 0.33 | 0.46 | 0.21 | 0.16 | 0.15 | 0.15 | 0.18 | 0.18 | 0.19 | 0.30 | 0.31 | -0.28 | -0.32 | 0.10 | -0.11 | 0.31 | 0.08 | 0.31 | -0.21 |
| EHDPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.45 | -0.16 | 0.42 | -0.20 | -0.16 | -0.31 | -0.34 | -0.37 | -0.31 | -0.21 | -0.43 | -0.42 | -0.20 | -0.22 | 0.10 | -0.13 | 0.29 | -0.12 | -0.04 | 0.16 |
| TEHP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.22 | 0.66 | -0.10 | 0.21 | -0.28 | -0.18 | -0.11 | -0.14 | -0.02 | -0.41 | -0.39 | -0.11 | 0.02 | 0.01 | -0.25 | 0.14 | 0.08 | 0.13 | -0.33 |
| TMPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.52 | 0.22 | 0.44 | 0.28 | 0.30 | 0.28 | 0.33 | 0.41 | 0.31 | 0.33 | 0.04 | 0.08 | -0.02 | 0.03 | 0.04 | 0.30 | -0.14 | -0.21 |
| ∑9 OPFRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.22 | 0.33 | 0.06 | 0.18 | 0.26 | 0.21 | 0.47 | -0.02 | 0.03 | -0.24 | -0.11 | 0.03 | -0.28 | 0.25 | -0.02 | 0.17 | -0.14 |
| **PBDEs** | BDE-28 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.35 | 0.55 | 0.56 | 0.49 | 0.49 | 0.46 | 0.47 | 0.54 | -0.14 | -0.04 | 0.03 | 0.06 | 0.35 | 0.30 | -0.25 | -0.18 |
| BDE-47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.63 | 0.72 | 0.75 | 0.74 | 0.67 | 0.37 | 0.47 | -0.07 | 0.18 | -0.44 | 0.19 | 0.18 | 0.28 | -0.18 | -0.33 |
| BDE-100 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.97 | 0.82 | 0.86 | 0.63 | 0.73 | 0.81 | -0.38 | -0.29 | 0.09 | -0.11 | 0.49 | 0.08 | -0.14 | 0.07 |
| BDE-99 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.90 | 0.90 | 0.72 | 0.66 | 0.75 | -0.36 | -0.19 | -0.02 | -0.13 | 0.45 | 0.02 | -0.08 | 0.01 |
| BDE-154 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.89 | 0.67 | 0.65 | 0.73 | -0.30 | -0.18 | -0.14 | -0.08 | 0.33 | -0.05 | -0.05 | -0.02 |
| BDE-153 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.60 | 0.72 | 0.79 | -0.30 | -0.20 | -0.09 | -0.06 | 0.38 | 0.05 | -0.15 | -0.05 |
| BDE-183 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.48 | 0.56 | -0.16 | 0.04 | -0.29 | -0.16 | 0.06 | 0.19 | 0.06 | -0.20 |
| BDE-209 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.99 | -0.40 | -0.54 | 0.06 | -0.34 | 0.28 | 0.15 | -0.04 | -0.09 |
| ∑8 PBDE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.38 | -0.49 | 0.01 | -0.31 | 0.31 | 0.16 | -0.06 | -0.10 |

Green indicates Pearson correlation coefficient differed significantly from zero, p-value < 0.05.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table S7. Pearson correlation coefficients between firefighting ensemble storage area dust concentrations of chemicals and station characteristics.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Firefighting Ensemble Storage Area** | | **PAHs** | | | | | | | | | | | | **OPFRs** | | | | | | | | | | **PBDEs** | | | | | | | | | **Station Characteristics** | | | | | | | |
| Phe | Ant | Flu | Pyr | Chr +BaA | BbF+BkF | BeP | BaP | I123cdP | DahA | BghiP | ∑13 PAHs | TnBP | TCEP | TCIPP | TDCIPP | TBOEP | TPhP | EHDPP | TEHP | TMPP | ∑9 OPFRs | BDE-28 | BDE-47 | BDE-100 | BDE-99 | BDE-154 | BDE-153 | BDE-183 | BDE-209 | ∑8 PBDE | Station Age | Age Renovation | Per Annum Fire Attendance | Fraction of Living Quarters Carpeted | Engine Bay - Drive Through | PPE stored in thoroughfare | PPE stored in separate room with closed doors | PPE stored outside of the station |
| **PAHs** | Phe |  | 0.69 | 0.85 | 0.83 | 0.85 | 0.85 | 0.79 | 0.79 | 0.81 | 0.83 | 0.72 | 0.88 | 0.22 | 0.40 | 0.35 | 0.25 | 0.17 | 0.20 | -0.13 | -0.02 | 0.36 | 0.22 | 0.54 | 0.31 | 0.29 | 0.00 | 0.25 | 0.03 | 0.18 | 0.18 | 0.17 | 0.03 | -0.20 | -0.40 | -0.31 | 0.08 | 0.49 | -0.10 | -0.38 |
| Ant |  |  | 0.44 | 0.46 | 0.51 | 0.50 | 0.34 | 0.34 | 0.40 | 0.49 | 0.34 | 0.49 | 0.32 | 0.26 | 0.65 | 0.60 | 0.51 | 0.43 | 0.39 | 0.43 | 0.53 | 0.58 | 0.48 | 0.21 | 0.41 | -0.11 | 0.43 | -0.06 | 0.45 | 0.48 | 0.30 | -0.24 | -0.35 | -0.21 | -0.49 | 0.00 | 0.45 | -0.18 | -0.28 |
| Flu |  |  |  | 0.98 | 0.95 | 0.94 | 0.91 | 0.93 | 0.94 | 0.88 | 0.85 | 0.98 | 0.14 | 0.27 | 0.11 | -0.01 | -0.19 | -0.14 | -0.38 | -0.29 | 0.06 | -0.12 | 0.34 | 0.20 | -0.02 | -0.23 | -0.13 | -0.26 | -0.14 | -0.31 | -0.36 | 0.26 | -0.04 | -0.47 | -0.18 | -0.06 | 0.37 | -0.05 | -0.30 |
| Pyr |  |  |  |  | 0.96 | 0.93 | 0.94 | 0.90 | 0.92 | 0.90 | 0.91 | 0.98 | 0.18 | 0.32 | 0.13 | 0.05 | -0.17 | -0.10 | -0.34 | -0.22 | 0.11 | -0.09 | 0.32 | 0.18 | 0.02 | -0.23 | -0.12 | -0.31 | -0.18 | -0.30 | -0.36 | 0.18 | -0.08 | -0.44 | -0.23 | -0.03 | 0.23 | -0.01 | -0.21 |
| BaA + Chr |  |  |  |  |  | 0.95 | 0.93 | 0.88 | 0.89 | 0.90 | 0.86 | 0.97 | 0.14 | 0.31 | 0.10 | 0.03 | -0.18 | -0.04 | -0.29 | -0.22 | 0.16 | -0.08 | 0.32 | 0.07 | -0.01 | -0.21 | -0.13 | -0.31 | -0.14 | -0.37 | -0.42 | 0.13 | -0.13 | -0.43 | -0.21 | 0.03 | 0.26 | -0.19 | -0.09 |
| BbF + BkF |  |  |  |  |  |  | 0.89 | 0.95 | 0.97 | 0.96 | 0.82 | 0.96 | 0.08 | 0.17 | 0.00 | -0.09 | -0.28 | -0.22 | -0.43 | -0.36 | -0.02 | -0.21 | 0.37 | 0.00 | -0.07 | -0.16 | -0.13 | -0.23 | -0.13 | -0.26 | -0.30 | 0.14 | -0.20 | -0.33 | -0.31 | 0.02 | 0.37 | -0.18 | -0.20 |
| BeP |  |  |  |  |  |  |  | 0.89 | 0.89 | 0.91 | 0.96 | 0.96 | 0.17 | 0.33 | -0.02 | -0.01 | -0.24 | -0.11 | -0.42 | -0.25 | 0.14 | -0.18 | 0.27 | 0.16 | 0.00 | -0.18 | -0.17 | -0.30 | -0.27 | -0.38 | -0.36 | 0.06 | -0.13 | -0.35 | -0.22 | 0.13 | 0.10 | -0.12 | 0.00 |
| BaP |  |  |  |  |  |  |  |  | 0.98 | 0.94 | 0.82 | 0.94 | 0.06 | 0.13 | -0.14 | -0.20 | -0.31 | -0.32 | -0.52 | -0.45 | -0.14 | -0.31 | 0.27 | -0.01 | -0.18 | -0.26 | -0.23 | -0.27 | -0.15 | -0.35 | -0.41 | 0.17 | -0.21 | -0.28 | -0.22 | 0.07 | 0.37 | -0.21 | -0.18 |
| I123cdP |  |  |  |  |  |  |  |  |  | 0.96 | 0.84 | 0.95 | 0.08 | 0.18 | -0.07 | -0.14 | -0.30 | -0.29 | -0.50 | -0.40 | -0.09 | -0.27 | 0.36 | 0.01 | -0.14 | -0.24 | -0.18 | -0.25 | -0.17 | -0.25 | -0.32 | 0.18 | -0.21 | -0.32 | -0.27 | 0.00 | 0.33 | -0.13 | -0.21 |
| DahA |  |  |  |  |  |  |  |  |  |  | 0.87 | 0.94 | 0.17 | 0.21 | 0.01 | -0.01 | -0.25 | -0.19 | -0.42 | -0.28 | 0.03 | -0.19 | 0.36 | 0.01 | -0.01 | -0.18 | -0.08 | -0.25 | -0.19 | -0.17 | -0.23 | 0.06 | -0.26 | -0.27 | -0.39 | 0.07 | 0.27 | -0.19 | -0.10 |
| BghiP |  |  |  |  |  |  |  |  |  |  |  | 0.91 | 0.24 | 0.38 | 0.03 | 0.07 | -0.20 | -0.08 | -0.37 | -0.14 | 0.17 | -0.14 | 0.25 | 0.22 | 0.04 | -0.21 | -0.18 | -0.38 | -0.32 | -0.30 | -0.31 | 0.00 | -0.16 | -0.35 | -0.32 | 0.08 | -0.03 | 0.03 | 0.01 |
| ∑13 PAHs |  |  |  |  |  |  |  |  |  |  |  |  | 0.16 | 0.31 | 0.09 | 0.02 | -0.17 | -0.10 | -0.36 | -0.25 | 0.11 | -0.10 | 0.35 | 0.15 | 0.01 | -0.20 | -0.11 | -0.27 | -0.14 | -0.27 | -0.31 | 0.13 | -0.16 | -0.40 | -0.26 | 0.04 | 0.30 | -0.11 | -0.19 |
| **OPFRs** | TnBP |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.75 | 0.61 | 0.68 | 0.57 | 0.53 | 0.49 | 0.62 | 0.54 | 0.64 | -0.12 | 0.50 | 0.61 | 0.11 | 0.46 | -0.01 | 0.25 | 0.06 | 0.12 | 0.12 | 0.35 | -0.62 | -0.10 | -0.29 | -0.05 | 0.19 | -0.10 |
| TCEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.49 | 0.54 | 0.55 | 0.63 | 0.42 | 0.54 | 0.61 | 0.59 | 0.13 | 0.51 | 0.62 | 0.32 | 0.44 | 0.18 | 0.27 | 0.05 | 0.30 | 0.08 | 0.27 | -0.71 | 0.03 | -0.16 | -0.09 | 0.35 | -0.19 |
| TCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.92 | 0.77 | 0.74 | 0.68 | 0.80 | 0.74 | 0.91 | 0.22 | 0.54 | 0.75 | 0.06 | 0.66 | 0.11 | 0.35 | 0.61 | 0.50 | 0.03 | 0.20 | -0.46 | -0.18 | -0.25 | 0.28 | 0.24 | -0.45 |
| TDCIPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.81 | 0.78 | 0.74 | 0.92 | 0.78 | 0.91 | 0.19 | 0.55 | 0.83 | 0.07 | 0.64 | 0.02 | 0.29 | 0.47 | 0.44 | -0.13 | 0.10 | -0.34 | -0.28 | -0.13 | 0.08 | 0.20 | -0.23 |
| TBOEP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.77 | 0.85 | 0.85 | 0.65 | 0.78 | 0.10 | 0.46 | 0.74 | 0.22 | 0.72 | 0.29 | 0.71 | 0.49 | 0.53 | -0.18 | 0.03 | -0.24 | -0.05 | -0.05 | 0.24 | 0.15 | -0.34 |
| TPhP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.73 | 0.82 | 0.91 | 0.78 | 0.25 | 0.56 | 0.63 | 0.10 | 0.54 | 0.10 | 0.36 | 0.46 | 0.46 | -0.20 | 0.05 | -0.38 | -0.12 | -0.05 | -0.09 | 0.13 | -0.01 |
| EHDPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.88 | 0.51 | 0.78 | -0.22 | 0.16 | 0.57 | 0.12 | 0.46 | 0.03 | 0.54 | 0.33 | 0.36 | -0.29 | -0.02 | -0.12 | -0.06 | 0.00 | 0.01 | 0.17 | -0.15 |
| TEHP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.73 | 0.78 | -0.03 | 0.41 | 0.74 | 0.11 | 0.55 | 0.04 | 0.36 | 0.44 | 0.45 | -0.31 | 0.05 | -0.20 | -0.17 | -0.01 | -0.09 | 0.27 | -0.13 |
| TMPP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.79 | 0.39 | 0.62 | 0.60 | 0.01 | 0.54 | 0.09 | 0.27 | 0.44 | 0.36 | -0.15 | 0.13 | -0.44 | -0.09 | -0.06 | -0.05 | -0.03 | 0.07 |
| ∑9 OPFRs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.15 | 0.53 | 0.77 | 0.16 | 0.71 | 0.19 | 0.56 | 0.56 | 0.54 | -0.14 | 0.10 | -0.36 | -0.13 | -0.12 | 0.16 | 0.19 | -0.30 |
| **PBDEs** | BDE-28 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.42 | 0.28 | 0.15 | 0.45 | 0.34 | 0.11 | 0.47 | 0.45 | 0.16 | -0.11 | -0.22 | -0.27 | -0.24 | 0.27 | -0.09 | -0.18 |
| BDE-47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.58 | 0.22 | 0.47 | 0.21 | 0.20 | 0.19 | 0.32 | 0.13 | 0.34 | -0.47 | -0.18 | -0.19 | -0.04 | 0.41 | -0.28 |
| BDE-100 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.58 | 0.84 | 0.43 | 0.34 | 0.42 | 0.69 | 0.03 | 0.24 | -0.36 | -0.19 | -0.20 | 0.14 | 0.31 | -0.37 |
| BDE-99 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.59 | 0.78 | 0.34 | 0.15 | 0.71 | 0.07 | 0.25 | -0.07 | 0.00 | -0.08 | 0.03 | 0.33 | -0.29 |
| BDE-154 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.71 | 0.57 | 0.65 | 0.78 | 0.16 | 0.27 | -0.27 | -0.03 | -0.31 | 0.29 | 0.07 | -0.32 |
| BDE-153 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.54 | 0.42 | 0.72 | 0.20 | 0.38 | -0.05 | 0.32 | -0.12 | 0.32 | 0.08 | -0.35 |
| BDE-183 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.31 | 0.43 | -0.21 | -0.03 | -0.02 | 0.06 | 0.12 | 0.44 | -0.06 | -0.35 |
| BDE-209 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.78 | -0.11 | -0.14 | 0.05 | -0.21 | -0.14 | 0.23 | 0.15 | -0.33 |
| ∑8 PBDE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | -0.14 | -0.02 | 0.01 | -0.22 | -0.04 | 0.18 | 0.38 | -0.47 |

Green indicates Pearson correlation coefficient differed significantly from zero, p-value < 0.05.

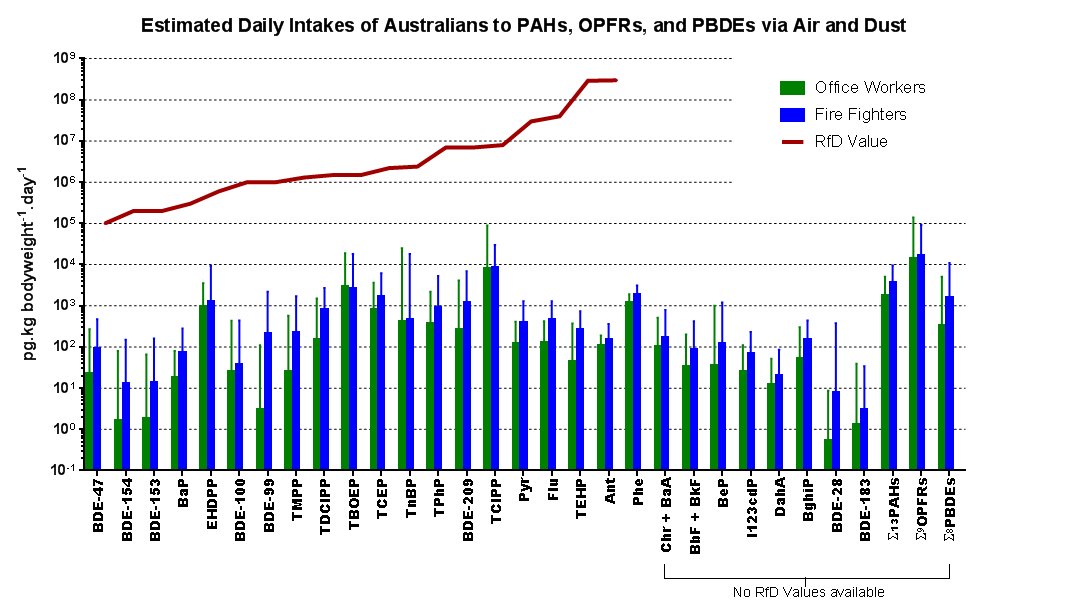


**Figure S2. PCA Biplot between select air and dust concentrations of chemicals and station characteristics.**

**Table S8.  Exposure estimation to PAHs, OPFRs and PBDEs though air and dust from He et al., (2018) and Wang et al., (2019) (****pg.kg body weight-1.day-1).**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Inhalation | Dermal | Dust Ingestion |  | Sum |  |  | RfD Value |
|  | Median | Median | Median |  | Median | 5th Percentile | 95th Percentile |  |
| Phe | 450 | 720 | 41 |  | 1200 | 990 | 1900 |  |
| Ant | 41 | 68 | 3.9 |  | 110 | 79 | 190 | 3×108 |
| Flu | 110 | 22 | 1.2 |  | 130 | 82 | 420 | 4×107 |
| Pyr | 83 | 40 | 2.5 |  | 120 | 59 | 410 | 3×107 |
| Chr + BaA | 8.2 | 85 | 6.2 |  | 100 | 48 | 510 |  |
| BbF + BkF | 0.86 | 30 | 2.1 |  | 33 | 9.1 | 200 |  |
| BeP | 3.1 | 30 | 2.3 |  | 36 | 7.4 | 1000 |  |
| BaP | 0.01 | 17 | 1.1 |  | 18 | 1.3 | 80 | 3×105 |
| I123cdP | 0.69 | 22 | 1.65 |  | 25 | 7.3 | 110 |  |
| DahA | 0.02 | 11 | 0.81 |  | 12 | 1.6 | 52 |  |
| BghiP | 3.5 | 45 | 3 |  | 52 | 14 | 300 |  |
| Σ13PAHs | 700 | 1100 | 66 |  | 1800 | 1300 | 5100 |  |
| TnBP | 400 | 13 | 3 |  | 420 | 110 | 25000 | 2.4 × 106 |
| TCEP | 680 | 100 | 23 |  | 800 | 200 | 3600 | 2.2 × 106 |
| TCIPP | 6600 | 1200 | 280 |  | 8000 | 1100 | 89000 | 8.0 × 106 |
| TDCIPP | 11 | 110 | 22 |  | 150 | 51 | 1500 | 1.5 × 106 |
| TBOEP | 28 | 2400 | 580 |  | 3000 | 620 | 19000 | 1.5 × 106 |
| TPhP | 90 | 220 | 59 |  | 370 | 70 | 2200 | 7.0 × 106 |
| EHDPP | 39 | 700 | 210 |  | 950 | 140 | 3500 | 6.0 × 105 |
| TEHP | 3.1 | 34 | 7.4 |  | 45 | 40 | 370 | 2.9 × 108 |
| TMPP | 3.4 | 17 | 3.7 |  | 25 | 7.6 | 570 | 1.3 × 106 |
| Σ9OPFRs | 7800 | 4700 | 1200 |  | 14000 | 2300 | 140000 |  |
| BDE-28 | 0.42 | 0.09 | 0.02 |  | 0.53 | 0.21 | 8.7 |  |
| BDE-47 | 2 | 16 | 4.2 |  | 22 | 4.2 | 270 | 1.0 × 105 |
| BDE-100 | 0.67 | 19 | 5 |  | 25 | 34 | 430 | 1.0 × 106 |
| BDE-99 | 0.09 | 2.3 | 0.61 |  | 3 | 0.48 | 110 | 1.0 × 106 |
| BDE-154 | 0.09 | 1.2 | 0.33 |  | 1.6 | 0.3 | 80 | 2.0 × 105 |
| BDE-153 | 0.09 | 1.4 | 0.31 |  | 1.8 | 1.5 | 66 | 2.0 × 105 |
| BDE-183 | 0.09 | 0.98 | 0.21 |  | 1.3 | 0.19 | 39 |  |
| BDE-209 | 6.9 | 210 | 53 |  | 270 | 52 | 4100 | 7.0 × 106 |
| Σ8PBDEs | 10 | 250 | 64 |  | 330 | 62 | 5100 |  |

**Figure S2. Estimated Daily Intakes to PAHs, OPFRs and PBDEs via Air and Dust**



Columns represent the median exposure dose and error bars the dose at the 95th percentile used to represent a worst-case exposure scenario

**References**

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