Consumer product chemicals in indoor dust: a quantitative meta-analysis of U.S. studies

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Supporting Information

25 pages

3 figures

11 tables

Contents and page numbers

| Table S1 – S2 | Figure S1 – S17 |
| Table S2 and unpublished dataset methods – S3 | Figure S2 – S18 |
| Table S3 – S6 | Table S9 – S19 |
| Table S4 – S8 | Table S10 – S20 |
| Table S5 – S9 | Table S11 – S21 |
| Table S6 and intake assessment equations – S10 | Figure S3 – S22 |
| Table S7 – S11 | References – S23 |
| Table S8 – S13 | |

S1
| Paper | Chemical Classes Measured | Indoor Environment | Method | Sieve (µm) | Storage container | Storage temperature |
|-------|--------------------------|--------------------|--------|------------|------------------|---------------------|
| Adamkiewicz et al. (unpublished dataset) | RFRs, Phenols, Phthalates, Fragrance | Home | Study vacuumed | 150 | Glass jars with Teflon liners | Refrigerated |
| Abdallah et al. 2007 | RFRs | Home | Study vacuumed | 500 | Nylon sock in plastic bag | –20°C |
| Batterman et al. 2010 | RFRs | Non-residential | Study vacuumed | | | |
| Bradman et al. 2012 | RFRs, Phthalates, PFASs | Non-residential | Study vacuumed | 150 | Amber glass jars | –20°C |
| Brown et al. 2014 | RFRs | Home, non-residential | Existing used bag | 150 | Amber glass jars, in the dark | 4°C |
| Carignan et al. 2013a | RFRs | Non-residential | Study vacuumed | 500 | Cellulose thimble, in aluminum foil, in a polyethylene bag | Room temperature |
| Carignan et al. 2013b | RFRs | Home, non-residential, car | Study vacuumed | 500 | Cellulose thimble, in aluminum foil, in a polyethylene bag | Room temperature |
| Dodson et al. 2012 | RFRs | Home | Study vacuumed | 150 | | –16°C |
| Dodson et al. 2015 | Phthalates | Home | Study vacuumed | 150 | Pre-cleaned glass jars with Teflon-lined lids | –4°C |
| Fang et al. 2013 | RFRs | Home, car | Study vacuumed | 500 | | Room temperature |
| Fraser et al. 2013 | PFASs | Home, non-residential, car | Study vacuumed | 500 | Thimbles wrapped in aluminum foil, put in polyurethane bags; after sieving put in clean amber glass jars | Room temperature until sieving, then –20°C |
| Goosey et al. 2011 | PFASs | Home | Study vacuumed | 500 | Sock closed, sealed in plastic bag, transferred to glass tube | 4°C |
| Guo et al. 2011 | Phthalates | Home | Existing used bag | 2000 | Packed in clean aluminum foil | 4°C |
| Hoffman et al. 2014 | RFRs | Home | Study vacuumed | 500 | Amber glass vials | Room temperature |
| Hoffman et al. 2015 | RFRs | Home | Study vacuumed | 500 | Amber glass vials | Room temperature |
| Hwang et al. 2008 | Phthalates | Mix | Existing used bag | 100 | Glass jars cleaned with hexane | –20°C |
| Johnson et al. 2013 | RFRs | Home | Existing used bag | 150 | Vacuum bag put in aluminum foil, sealed in plastic bag | –20°C |
| Knobeloch et al. 2012 | PFASs | Home | Existing used bag | 1000 | Vacuum bags double wrapped in aluminum foil | 4°C |
| Liao et al. 2013 | Phenols, Phthalates, PFASs | Home | Existing used bag | 2000 | Clean aluminum foil | 4°C |
| Loganathan et al. 2011 | Phenols | Home, non-residential | Existing used bag | 425 | | –20°C |
| Meeker et al. 2010 | RFRs | Home | Existing used bag | 150 | | |
| Rudel et al. 2003 | Phenols, Phthalates | Home | Study vacuumed | 150 | Thimbles put in glass jars with Teflon-lined lids | –4°C |
| Schreder et al. 2014 | RFRs | Home | Study vacuumed | 300 | Cellulose collection filter in a whirl-pak | 4°C |
| Shin et al. 2014 | RFRs, Phthalates, Fragrance | Home | Study vacuumed | 150 | Thimbles wrapped in aluminum foil, put in polypropylene vials | –20°C |
| Stapleton et al. 2008 | RFRs | Home | Study vacuumed | 500 | | Room temperature |
| Stapleton et al. 2009 | RFRs | Home | Existing used bag | 150 | | Room temperature |
| Stapleton et al. 2014 | RFRs | Home | Study vacuumed | 500 | Thimbles wrapped in foil, stored in plastic bags | –4°C |
| Strynar et al. 2008 | PFASs | Mix | Existing used bag | 150 | Amber glass containers | Room temperature |
| Wang et al. 2012 | Phenols | Mix | Existing used bag | 2000 | Clean aluminum foil | 4°C |
| Wang et al. 2013 | Phenols | Home | Existing used bag | 2000 | Clean aluminum foil | 4°C |
| Wilson et al. 2007 | Phenols | Home, non-residential | Study vacuumed | | Lidded glass jar sealed with Teflon tape, in two Ziplock bags | –10°C |
| Wu et al. 2015 | PFASs | Home | Study vacuumed | 150 | | |

Information was collected from published manuscripts and from personal communications with the authors of those manuscripts.
Table S2: Quality assurance/quality control measures from 31 papers and 1 unpublished dataset with quantitative data

| Paper                      | Analysis                                      | Reference material | Internal standard | Lab blank | Field blank | Additional Accuracy/Precision                                                                                                                                 |
|----------------------------|-----------------------------------------------|--------------------|-------------------|-----------|------------|---------------------------------------------------------------------------------------------------|
| Adamkiewicz et al. (unpublished)* | GC/MS in SIM mode                             |                    | ✓                 | ✓         |            | Lab-split duplicates measured (n=5 for phenols; n=4 for neutrals); Matrix spikes (n=10 for phenols; n=8 for neutrals) |
| Abdallah et al. 2007³      | LC/MS/MS in ES negative ion mode, and MS/MS in MRM mode | ✓                  | ✓                 | ✓         | ✓          | Replicate analysis of SRM 2585; comparison to indicative values                                      |
| Batterman et al. 2010²     | GC/MS, negative chemical ionization mode       | ✓                  | ✓                 | ✓         | ✓          | Calibrations checked with the Analytical Center “Typhoon” Laboratory. Standards run every 5 samples; results accepted only when standards varied by < 10% |
| Bradman et al. 2012³       | GC/MS/MID                                     | ✓                  |                   |           |            | Duplicates measured (n=2)                                                                           |
| Brown et al. 2014⁴         | GC/MS                                         | ✓                  | ✓                 | ✓         |            | Lab blank corrected                                                                               |
| Carignan et al. 2013⁵      | GC/ECNI-MS                                    | ✓                  | ✓                 | ✓         |            | Duplicates measured (n=3); lab and field blank corrected                                           |
| Carignan et al. 2013⁶      | GC/ECNI-MS                                    | ✓                  | ✓                 | ✓         |            | Duplicates measured (n=3); matrix spikes (n=3)                                                   |
| Dodson et al. 2012⁷        | GC-ECNI/MS or GC-EI/MS or LCMS/MS (HBCDs & TBBPA) | ✓                  | ✓                 | ✓         |            | Inter-laboratory comparisons, matrix spikes, blank corrected                                       |
| Dodson et al. 2015⁸        | GC/MS in SIM mode                             | ✓                  | ✓                 | ✓         |            | Duplicates measured (n=3); matrix spikes (n=3)                                                   |
| Fang et al. 2013⁹          | GC/EI-MS                                      | ✓                  | ✓                 | ✓         | ✓          | Matrix spikes, inter and intra-day variability measured, duplicates measured (n=3)                |
| Fraser et al. 2013¹⁰       | UPLC/MS/MS for most samples. HPLC/TOFMS for FTOHs, N-Me FOSE, N-Et FOSE, PFTra, PFTea | ✓                  | ✓                 | ✓         | ✓          | --                                                                                               |
| Goosey et al. 2011¹¹       | LC/MS/MS in ES negative ion mode; MS/MS in MRM mode | ✓                  | ✓                 | ✓         | ✓          | --                                                                                               |
| Guo et al. 2011¹²          | GC/MS in SIM mode                             | ✓                  | ✓                 | ✓         |            | Matrix spikes, fourth extraction of samples                                                         |
| Hoffman et al. 2014¹³      | GS-ECNI/MS                                    | ✓                  | ✓                 | ✓         |            | Blank subtraction, interclass correlation coefficients                                              |
| Hoffman et al. 2015¹⁴      | GS-ECNI/MS                                    | ✓                  | ✓                 | ✓         |            | Blank subtraction, interclass correlation coefficients                                              |
| Hwang et al. 2008¹⁵        | GC/MS in EI and SIM mode                      | ✓                  | ✓                 | ✓         |            | Duplicate samples                                                                                 |
| Johnson et al. 2013¹⁶      | GC/ECNI-MS                                    | ✓                  | ✓                 | ✓         |            | Blank corrected                                                                                   |
| Knobeloch et al. 2012¹⁷    | HPLC-MS/MS                                    | ✓                  | ✓                 | ✓         |            | Matrix spikes                                                                                     |
| Liao et al. 2012¹⁸         | LC-MS/MS. ESI-MS/MS, with HPLC, in negative ion MRM mode | ✓                  | ✓                 | ✓         |            | Third extraction, matrix spikes, duplicate samples                                                 |
| Loganathan et al. 2011¹⁹   | HPLC–MS/MS in electrospray negative ion mode  | ✓                  | ✓                 | ✓         |            | Third extraction, matrix spikes, duplicate samples                                                 |
| Meeker et al. 2010²⁰       | GC-EI/MS for TPP,GC-ECNI/MS for TDCPP         | ✓                  | ✓                 | ✓         |            | Duplicate samples (n=3), matrix spikes (n=3), blank correction                                    |
| Rudel et al. 2003²¹        | GC/MS system in SIM mode                      | ✓                  | ✓                 | ✓         |            | Duplicate samples (n=4), matrix spikes                                                            |
| Schreder et al. 2014²²     | UPLC-APPI/MS/MS                               | ✓                  | ✓                 | ✓         | ✓          | Matrix spikes, duplicates, blank correction                                                        |
| Shin et al. 2014²³         | GC-EI/MS; GC-NCI/MS for TBPH and TBB          | ✓                  | ✓                 | ✓         |            | Duplicates, matrix spikes                                                                           |
| Stapleton et al. 2008²⁴    | (GC/ECNI-MS)                                  | ✓                  | ✓                 | ✓         | ✓          | Duplicate samples (n=3), matrix spikes (n=53, blank correction)                                    |
Methods for Pesticide and Chemical Exposure (PACE) Study
(G. Adamkiewicz, unpublished data)

Participant Recruitment

A convenience sample of adults living in the low-income, and predominantly African American communities of Roxbury, Massachusetts (and surrounding communities), and Gadsden County, Florida was recruited. We utilized direct recruitment at community events and through the posting of informational flyers. We also recruited some participants via a previous health study of Gadsden County and Roxbury residents, if they had provided permission to be contacted possible participation in subsequent studies. A total of 198 households were recruited (n=98 in Florida and n=100 in Massachusetts), and home visits were conducted between December 2006 and January 2008.

Laboratory analysis

Settled dust samples were collected using a Eureka Mighty-Mite II canister vacuum cleaner, which was used to sample the entire residence for approximately 40 minutes. Samples were collected in two thimbles, which were placed into pre-cleaned glass jars with Teflon liners and refrigerated. The entire contents of the thimble containing the dust sample were passed through a 150-um sieve, and

| Study (Year)         | Methodology                                                                 | Duplicate Samples | Matrix Spikes | Blank Correction | Other Analysis                      |
|----------------------|----------------------------------------------------------------------------|-------------------|---------------|------------------|-------------------------------------|
| Stapleton et al. 2009 | GC/EI-MS for TCPP and TPP; GC/ECNI-MS for TDCPP                            | ✓                 | ✓             |                  | Blank corrected, interclass correlation coefficients |
| Stapleton et al. 2014 | GC/MS                                                                      | ✓                 | ✓             |                  | Duplicate analysis, matrix spikes    |
| Strynar et al. 2008  | GC-EI/MS in SIM mode (FTOHs). LC-MS/MS in negative ESI mode (other PFCs)   | ✓                 | ✓             |                  | Duplicate analysis, matrix spikes    |
| Wang et al. 2012     | LC-MS/MS                                                                   | ✓                 | ✓             |                  | Matrix spikes                       |
| Wang et al. 2013     | HPLC-MS/MS                                                                 | ✓                 | ✓             |                  | Matrix spikes                       |
| Wilson et al. 2007   | GC/MS                                                                      | ✓                 | ✓             |                  | Blank correction, duplicate samples, matrix spikes |
| Wu et al. 2015       | LC/MS/MS                                                                   | ✓                 | ✓             |                  | Duplicates                          |
the fine fraction weighed. When designated for chemicals analyses, the fine fraction was split into two aliquots of equal weight for the pesticides/neutrals and phenols extractions. If fine dust mass was sufficient, extra aliquots of equal weight were prepared for duplicate or spiked sample extractions. Pesticides and neutral chemicals were determined by soxhlet-extraction of dust aliquots with 6% diethyl ether in hexanes, florisil cleanup, and GC/MS selected ion monitoring (SIM) analysis, with improvements using diazinon-d_{10} and pentachloronitrobenzene as additional extraction surrogates, deuterated pesticides and phthalates and benzyl benzoate as additional internal standards, and quadratic calibration for non-linear analytes. Phenolic chemicals were determined by sonication extraction of acidified dust aliquots with dichloromethane (DCM), diazomethane derivatization, and GC/MS/SIM analysis, generally as described by Rudel et al.(2009),^{32} with improvements using 2,4-dibromophenol as an added extraction surrogate, ortho-phenylphenol-^{13}C_{6}, bisphenol A-^{13}C_{12} and 2,4-dichlorophenol-^{13}C_{6} as additional internal standards, and quadratic calibration for non-linear analytes. All samples (n=198) were analyzed for target pesticides. Due to budgetary limitations, a subset of samples in each cohort was randomly selected for neutral (n=55 in Florida and n=55 in Massachusetts) and phenol (n=50 in Florida and n=50 in Massachusetts) analysis.

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Table S3: Studies contributing data to the meta-analysis

| Chemical    | Study Numbering Key |
|-------------|---------------------|
|             | 1                   |
|             | 2                   |
|             | 3                   |
|             | 4                   |
|             | 5                   |
|             | 6                   |
|             | 7                   |
|             | 8                   |
|             | 9                   |
|             | 10                  |
|             | 11                  |
|             | 12                  |
|             | 13                  |
|             | 14                  |
|             | 15                  |
|             | 16                  |
|             | 17                  |
|             | 18                  |
|             | 19                  |
|             | 20                  |
|             | 21                  |
|             | 22                  |
|             | 23                  |
|             | 24                  |
|             | 25                  |
|             | 26                  |
|             | 27                  |

Filled boxes indicate that a study’s measurements of a chemical were used to generate a pooled estimate for the chemical. Boxes are color coded by chemical class: blue represent phthalates; red represents RFRs; yellow represents fragrances; green represents phenols; and purple represents PFASs. Study numbering key: 1. Adamkiewicz et al. (unpublished); 2. Abdallah et al. 2007; 3. Batterman et al. 2010; 4. Bradman et al. 2012;
5. Brown et al. 2014; 6. Carignan et al. 2013a; 7. Carignan et al. 2013b; 8. Dodson et al. 2012; 9. Dodson et al. 2015; 10. Fraser et al. 2013; 11. Goosey et al. 2011; 12. Hoffman et al. 2014; 13. Hoffman et al. 2015; 14. Hwang et al. 2008; 15. Johnson et al. 2013; 16. Knobeloch et al. 2012; 17. Liao et al. 2012; 18. Meeker et al. 2010; 19. Rudel et al. 2003; 20. Schreder et al. 2014; 21. Shin et al. 2014; 22. Stapleton et al. 2008; 23. Stapleton et al. 2014; 24. Strynar et al. 2008; 25. Wang et al. 2012; 26. Wilson et al. 2007; 27. Wu et al. 2015
Table S4. Treatment of below-method detection limit (MDL) values, from 31 papers and 1 unpublished dataset with quantitative data

| Paper                      | N/A | MDL/\sqrt{2} | MDL/2 | Other | Not reported |
|----------------------------|-----|--------------|-------|-------|--------------|
| Adamkiewicz et al. (unpublished) |     |              |       | MDL   |              |
| Abdallah et al. 2007    | x   |              | x     | MDL   |              |
| Batterman et al. 2010   |     |              | x     | MDL   |              |
| Bradman et al. 2012     |     |              |       | x     | MDL          |
| Brown et al. 2014       |     |              |       |       |              |
| Carignan et al. 2013    | x   |              | x     | MDL   |              |
| Carignan et al. 2013    | x   |              |       | MDL   |              |
| Dodson et al. 2012      | x   |              | x     | MDL   |              |
| Dodson et al. 2015      | x   |              |       | MDL   |              |
| Fang et al. 2013        | x   |              | x     | MDL   |              |
| Fraser et al. 2013      | x   |              | x     | MDL   |              |
| Goosey et al. 2011      | x   |              | x     | MDL   |              |
| Guo et al. 2011         | x   |              | x     | MDL   |              |
| Hoffman et al. 2014     | x   |              | x     | MDL   |              |
| Hoffman et al. 2015     | x   |              | x     | MDL   |              |
| Hwang et al. 2008       | x   |              |       | MDL   |              |
| Johnson et al. 2013     | x   |              | x     | MDL   |              |
| Knobeloch et al. 2012   | x   |              | x     | MDL   |              |
| Liao et al. 2012        | x   |              | x     | MDL   |              |
| Loganathan et al. 2011  | x   |              | x     | MDL   |              |
| Meeker et al. 2010      | x   |              | x     | MDL   |              |
| Rudel et al. 2003       | x   |              | x     | MDL   |              |
| Schreder et al. 2014    | x   |              | x     | MDL   |              |
| Shin et al. 2014        | x   |              | x     | MDL   |              |
| Stapleton et al. 2008   | x   |              | x     | MDL   |              |
| Stapleton et al. 2009   | x   |              |       | MDL   |              |
| Stapleton et al. 2014   | x   |              |       | MDL   |              |
| Strynar et al. 2008     | x   |              |       | MDL   |              |
| Wang et al. 2012        | x   |              |       | MDL   |              |
| Wang et al. 2013        | x   |              |       | MDL   |              |
| Wilson et al. 2007      | x   |              | x     | MDL   |              |
| Wu et al. 2015          | x   |              | x     | MDL   |              |

^1N/A: no values fell below the MDL, or no summary statistics were calculated by the authors that relied on values <\text{MDL}.

^2The complete dataset was available, and the study team inserted MDL/\sqrt{2} for <\text{MDL} values.
**Table S5**: Physico-chemical input values used for the intake model

| Chemical Abbreviation | CAS Number | Molecular Weight | H (bond method) | Log Kaw | Log Koa estimated | Log Kow estimated | H (group method) |
|-----------------------|------------|------------------|-----------------|---------|-------------------|-------------------|------------------|
| TPHP                  | 115-86-6   | 326.29           | 3.98E-08        | -7.40   | 8.459             | 4.70              |                  |
| TDCIPP                | 13674-87-8 | 430.91           | 2.61E-09        | -8.58   | 10.622            | 3.65              |                  |
| TCIPP                 | 13674-84-5 | 327.57           | 5.96E-08        | -7.22   | 8.203             | 2.89              |                  |
| TCEP                  | 115-96-8   | 285.49           | 2.55E-08        | -7.59   | 5.311             | 1.63              |                  |
| BEH-TEBP              | 26040-51-7 | 706.15           | 2.98E-07        | -6.53   | 16.864            | 11.95             | 3.08E-07         |
| HBCDD                 | 3194-55-6  | 641.70           | 1.72E-06        | -5.76   | 10.466            | 7.74              | 6.43E-11         |
| aHBCDD                | 3194-55-6  | 641.70           | 1.72E-06        | -5.76   | 10.466            | 7.74              | 6.43E-11         |
| bHBCDD                | 3194-55-6  | 641.70           | 1.72E-06        | -5.76   | 10.466            | 7.74              | 6.43E-11         |
| gHBCDD                | 3194-55-6  | 641.70           | 1.72E-06        | -5.76   | 10.466            | 7.74              | 6.43E-11         |
| BTBPE                 | 37853-59-1 | 687.64           | 7.32E-09        | -8.14   | 15.674            | 9.15              | 4.25E-07         |
| DBDPE                 | 84852-53-9 | 971.23           | 6.42E-08        | -7.19   | 19.221            | 13.64             | 2.94E-08         |
| aDDC-CO               | 13560-89-9 | 653.73           | 7.44E-06        | -5.13   | 14.787            | 11.27             |                  |
| sDDC-CO               | 13560-89-9 | 653.73           | 7.44E-06        | -5.13   | 14.787            | 11.27             |                  |
| TBBPA                 | 79-94-7    | 543.88           | 2.31E-13        | -12.64  | 18.225            | 7.20              |                  |
| MeP                   | 99-76-3    | 152.15           | 3.61E-09        | -8.44   | 8.791             | 2.00              | 2.23E-09         |
| BuP                   | 94-26-8    | 194.23           | 8.45E-09        | -8.07   | 10.032            | 3.47              | 6.00E-09         |
| ETp                   | 120-47-8   | 166.18           | 4.79E-09        | -8.32   | 9.178             | 2.49              | 3.01E-09         |
| NP                    | 84852-15-3 | 220.36           | 5.97E-06        | -5.22   | 9.525             | 5.77              | 1.73E-05         |
| NP1EO                 | 9016-45-9  | 440.63           | 9.61E-15        | -14.02  | 16.886            | 4.48              | 2.62E-17         |
| NP2EO                 | 9016-45-9  | 440.63           | 9.61E-15        | -14.02  | 16.886            | 4.48              | 2.62E-17         |
| OP1EO                 | 9036-19-5  | 426.60           | 7.24E-15        | -14.14  | 16.299            | 3.77              |                  |
| OP2EO                 | 9036-19-5  | 426.60           | 7.24E-15        | -14.14  | 16.299            | 3.77              |                  |
| 2,4-DHUBON           | 131-56-6   | 214.22           | 2.65E-11        | -10.58  | 11.925            | 2.96              |                  |
| BPA                   | 80-05-7    | 228.29           | 9.16E-12        | -11.04  | 12.747            | 3.64              |                  |
| HHCB                  | 1222-05-5  | 258.41           | 1.32E-04        | -3.88   | 8.168             | 6.26              | 7.56E-07         |
| BBzP                  | 85-68-7    | 312.37           | 4.22E-08        | -7.37   | 9.018             | 4.84              | 2.13E-09         |
| DEHP                  | 117-81-7   | 390.57           | 1.18E-05        | -4.93   | 12.557            | 8.39              | 1.02E-05         |
| DEHA                  | 103-23-1   | 370.58           | 5.16E-05        | -4.29   | 12.871            | 8.12              | 2.13E-05         |
| DnBP                  | 84-74-2    | 278.35           | 1.22E-06        | -5.91   | 8.631             | 4.61              | 4.45E-07         |
| DiBP                  | 84-69-5    | 278.35           | 1.22E-06        | -5.91   | 8.412             | 4.46              | 6.43E-07         |
| DEP                   | 84-66-2    | 222.24           | 3.94E-07        | -6.40   | 7.023             | 2.65              | 1.12E-07         |
| DnOP                  | 117-84-0   | 390.57           | 1.18E-05        | -4.93   | 12.079            | 8.54              | 7.05E-06         |
| DnHP                  | 84-75-3    | 334.46           | 3.80E-06        | -5.42   | 9.799             | 6.57              | 1.77E-06         |

Chemical abbreviations can be found in the text, in Table 1.
Table S6: Exposure factors used for the intake model.

|            | Weight (kg) | Body Surface Area (m²) | Age (years) | Dust Ingestion (g/day) | Volume of air inhaled (m³/day) |
|------------|-------------|------------------------|-------------|------------------------|-------------------------------|
| Adult      | 70          | 1.89                   | 40 – 49     | 0.03                   | 16                            |
| Child      | 18.6        | 0.76                   | 3 – 6       | 0.06                   | 10.1                          |

**Intake equations used in the intake model**
Parameters based on values from the literature.\(^{33-36}\)

**Dust to gaseous air concentration (µg/m³):**
Dust concentration (µg/g) × rho_dust / (fom_dust × (10\(^{\text{logKoa}}\)))
  - fom_dust = volume fraction of organic matter associated with settled dust, assumed 0.2
  - rho_dust = density of dust (g/m³), assumed to be 2000000 g/m³

**Gaseous air to total air concentration (µg/m³):**
Gaseous air concentration ((ng/m³) × (1 + (TSP / 1000000) × (fom_part × (10\(^{\text{logKoa}}\)) / rho_part))
  - TSP = total suspended particles (µg/m³), assumed 20 µg/m³
  - fom_part = volume fraction of organic matter associated with airborne particles, assumed to be 0.4
  - rho_part = density of airborne particles, default 100000 g/m³

**Dust ingestion**
Dust concentration (µg/g) × ingestion rate (g/day) / weight (kg)

**Air inhalation**
(Total air concentration (ng/m³) × volume of air inhaled (m³/day)) / weight (kg)

**Dermal exposure through air**
Gaseous air concentration (ng/m³) × (Indoor air transdermal permeability (cm/hour) / 100) × body surface area (m²) × exposure time (hours)) / weight (kg)
  - Indoor air transdermal permeability = ( 1 / ( (1/vd) + (1/kp_b) ) )
  - vd = mass-transfer coefficient between bulk air and skin surface (cm/hr), default 600 cm/hr
  - kp_cw = (10\(^{(0.7 \times \text{logKow} - 0.0722 \times (\text{molecular weight}^{2/3}) - 5.252)}) × 3600
  - B = (kp_cw × (molecular weight \(^{0.5}\)) / 2.6
  - kp_w = kp_cw / (1+B)
  - kp_b = kp_w × 10\(^{\text{abs(logKaw)}}\)
**Table S7:** Identification and brief description (modified from California Department of Toxic Substances Control Safer Consumer Products (CA SCP)) of the authoritative sources which the CA SCP program used to describe hazard traits for each chemical of interest.

| Authoritative List | Description |
|--------------------|-------------|
| California Maximum Contaminant Levels (CA MCL) | Chemicals for which primary Maximum Contaminant Levels have been established and adopted. The State Water Resources Control Board establishes MCLs – health protective drinking water standards to be met by California public water systems. MCLs must be reviewed every five years and take into account not only a chemical’s health risks but also factors such as detectability and treatability, as well as costs of treatment. |
| California Proposition 65 (Prop 65) | Chemicals known to cause cancer and/or reproductive toxicity that are listed under the California Safe Drinking Water and Toxic Enforcement Act of 1986. California’s Office of Environmental Health Hazard Assessment (OEHHA) publishes and updates the Proposition 65 list of chemicals known to the state to cause cancer, or developmental or reproductive toxicity. |
| California Toxic Air Contaminants (CA TACs) | Chemicals identified as Toxic Air Contaminants. The California Air Resources Board (ARB) regulates Toxic Air Contaminants (TACs), or “air pollutants which may cause or contribute to an increase in mortality or an increase in serious illness, or may pose a present or potential hazard to human health.” In addition to the list of TACs it developed in collaboration with OEHHA, ARB has also designated chemicals identified as hazardous air pollutants under the federal Clean Air Act as TACs. |
| California Environmental Contaminant Biomonitoring Program Priority Chemicals (CECBP) | The California Biomonitoring Program is a multi-agency program involving California Department of Public Health, OEHHA, and Department of Toxic Substances Control (DTSC) to monitor priority chemicals identified by the Centers for Disease Control and Prevention (CDC) and recommended by their Scientific Guidance Panel. |
| Canada Persistent, Bioaccumulative, inherently Toxic (Canada PBiT) | Chemicals that are identified as Persistent, Bioaccumulative, and Inherently Toxic to the environment by the Canadian Environmental Protection Act Environmental Registry Domestic Substances List. Using information from Canadian industry, academic research and other countries, Government of Canada scientists from the Existing Substances Program at Health Canada and Environment Canada worked with partners in applying a set of rigorous tools to each of the approximately 23,000 chemicals on the Domestic Substances List. |
| Centers for Disease Control and Prevention (CDC) 4th National Exposure Report | Chemicals that are identified on the Centers for Disease Control and Prevention’s Fourth National Report on Human Exposure to Environmental Chemicals and Updated Tables. The Centers for Disease Control and Prevention (CDC) is part of the U.S. Department of Health and Human Services, and produces the National Exposure Report as a series of ongoing assessments of the U.S. population’s exposure to environmental chemicals. |
| Clean Water Act (CWA) 303(c) and 303(d) | Chemicals that are identified as priority pollutants in the California Water Quality Control Plans under section 303(c) of the federal Clean Water Act and in section 131.38 of Title 40 of the Code of Federal Regulations, or identified as pollutants by California or the United States Environmental Protection Agency for one or more water bodies in California under section 303(d) of the federal Clean Water Act and section 130.7 of title 40 of the Code of Federal Regulations. |
| European Commission Annex VI Carcinogen, Mutagen or Reproductive Toxicant (EC Annex VI CMR) | Chemicals classified by the European Commission as carcinogens, mutagens, and/or reproductive toxicants. Annex VI is maintained by the European Chemicals Agency (ECHA), an international authoritative organization working with the European Commission and the European Union (EU) Member States for the safety of human health and the environment by identifying the needs for regulatory risk management at the EU-wide level. |
| European Commission Persistent, Bioaccumulative and Toxic (EC PBTs) | Chemicals included as persistent, bioaccumulative and toxic, or very persistent and very bioaccumulative by the European Commission in the candidate list of Substances of Very High Concern. |
| Integrated Risk Information System (IRIS) carcinogens | Chemicals that are identified as “carcinogenic to humans”, “likely to be carcinogenic to humans”, or Group A, B1, or B2 carcinogens in the United States Environmental Protection Agency’s Integrated Risk Information System. IRIS is a human health assessment program that evaluates quantitative and qualitative information about effects from exposure to environmental contaminants. |
| Authoritative List                                                                 | Description                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| International Agency for Research on Cancer (IARC) carcinogens                   | Groups 1, 2A, and 2B carcinogens identified by the International Agency for Research on Cancer. IARC promotes international collaboration in cancer research and developed criteria to evaluate carcinogenic risks to humans and publishes monographs describing these evaluations. |
| National Toxicology Program Office of Health Assessment and Translation Reproductive or Developmental Toxicants (NTP OHAT) | Reproductive or developmental toxicants identified in Monographs on the Potential Human Reproductive and Developmental Effects. The National Toxicology Program (NTP) is an interagency program managed by the U.S. Department of Health and Human Services whose mission is to evaluate agents of public health concern by developing and applying tools of modern toxicology and molecular biology. The NTP Office of Health Assessment and Translation (OHAT) conducts technical assessments focused on understanding the potential for adverse effects of substances on human health. |
| National Toxicology Program 12th Report on Carcinogens (NTP 12th ROC)           | Chemicals that are identified as “known to be” or “reasonably anticipated to be” a human carcinogen. The Report on Carcinogens (RoC) is a congressionally mandated, science-based, public health report that identifies agents, substances, mixtures, or exposures in our environment that are “known” or “reasonably anticipated” to cause cancer in humans. |
| Oslo and Paris Conventions for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) | Chemicals that are identified on Part A of the list of Chemicals for Priority Action, Oslo and Paris Conventions for the Protection of the Marine Environment of the North-East Atlantic. In 2002, the OSPAR Convention adopted the OSPAR List to protect the marine environment by indicating the substances on the OSPAR list, providing a background document to assess the uses and risks for the substances, and to conclude what actions OSPAR should take to move towards the cessation target. |
| United States Environmental Protection Agency Toxics Release Inventory Persistent, Bioaccumulative and Toxic (US EPA TRI PBTs) | Chemicals that are subject to reporting under the Emergency Planning and Community Right-to-Know Act section 313. U.S. EPA maintains the Toxics Release Inventory (TRI) database, which summarizes releases reported to U.S. EPA to provide communities with information about toxic chemical releases and waste management activities and to support informed decision-making by industry, government, non-governmental organizations and the public. |
| Washington State Persistent, Bioaccumulative and Toxic (WA PBTs)                | Washington Department of Ecology’s Persistent, Bioaccumulative, Toxic (PBT) Chemicals. Washington’s PBT initiative aims to reduce and phase-out the use, release, and exposure to PBTs in Washington in order to reduce and eliminate threats to human health and the environment. |

Hazard traits were identified directly from the authoritative list when available, or from related materials such as fact sheets produced by the organization responsible for the authoritative list. Hazard traits as defined by the California Department of Toxic Substances Control are “properties of chemicals that fall into broad categories of toxicity, adverse environmental effects, physical hazards or exposure potential characteristics that may contribute to adverse effects in exposed humans, domesticated animals, wildlife, or in ecological communities, populations or ecosystems.”
Table S8: Chemicals measured in one or two studies, not included in any subsequent phases of analysis. CAS RN and chemical common abbreviations are listed for chemicals measured in two studies.

| Chemical Common Abbreviation | Common Name(s), Other Abbreviations                                                                 | CAS Registry Number (CAS RN) | Measured in two studies |
|------------------------------|--------------------------------------------------------------------------------------------------|------------------------------|------------------------|
| **Replacement Flame Retardants (RFRs)** |                                                                                                    |                              |                        |
| a-DBE-DBCH                   | Alpha-1,2-dibromo-4-(1,2-dibromoethyl)-cyclohexane; a-TBEC; a-TBEC                              | 3322-93-8                    | X                      |
| b-DBE-DBCH                   | Beta-1,2-dibromo-4-(1,2-dibromoethyl)-cyclohexane, b-TBEC; b-TBEC                                | 3322-93-8                    | X                      |
| TBP-BAE                      | 2-bromoallyl-2,4,6-tribromophenyl ether (BATE)                                                     | 99717-56-3                   | X                      |
| TBP-DBPE                     | 2-3-dibromopropyl-2,4,6-tribromophenyl ether (DPTE)                                               | 35109-60-5                   | X                      |
| HBB                          | Hexabromobenzene                                                                                  | 87-82-1                      | X                      |
| Dechlorane Plus              |                                                                                                    |                              |                        |
| V6                           | alpha-tetrabromocyclooctane                                                                       |                              |                        |
| beta-tetrabromocyclooctane   |                                                                                                    |                              |                        |
| OBTMPI                        | cresyl diphenyl phosphate                                                                         |                              |                        |
| c-DBE-DBCH                   |                                                                                                    |                              |                        |
| d-DBE-DBCH                   |                                                                                                    |                              |                        |
| pentabromotoluene (PBT)      |                                                                                                    |                              |                        |
| pentabromoethylbenzene (PBE) |                                                                                                    |                              |                        |
| tris (2,3-dibromopropyl) phosphate (TDBPP) |                                                                                                           |                              |                        |
| triethyl phosphate (TEP)     |                                                                                                    |                              |                        |
| tri-n-propyl phosphate (TnPP) |                                                                                                    |                              |                        |
| tri-n-butyl phosphate (TnBP) |                                                                                                    |                              |                        |
| Tri-iso-butyl-phosphate (TiBP)|                                                                                                    |                              |                        |
| tri-(2-butoxyethyl)-phosphate (TBOEP) |                                                                                                         |                              |                        |
| tri-(2-ethylhexyl)phosphate (TEHP) |                                                                                                           |                              |                        |
| ethylhexyl diphenyl phosphate (EHDPP) |                                                                                                           |                              |                        |
| tricresyl phosphate (T3P)    |                                                                                                    |                              |                        |
| Hexachlorocyclopentadienyl-dibromocyclooctane (DBHCTD) |                                                                                                           |                              |                        |
| TBP-AE                       |                                                                                                    |                              |                        |
| TBBPA-BDBPE                  |                                                                                                    |                              |                        |
| Bis(2chloroethyl)vinyl phosphate |                                                                                                        |                              |                        |
| Tris(3-chloropropyl)phosphate |                                                                                                    |                              |                        |
| Chemical Common Abbreviation | Common Name(s), Other Abbreviations                                                                 | CAS Registry Number (CAS RN) | Measured in two studies |
|-------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------|-------------------------|
| Tris(2-butoxyethyl)phosphate  |                                                                                                     |                             |                         |
| Isodecyl diphenyl phosphate   |                                                                                                     |                             |                         |
| Isopropylphenyldiphenyl phosphate |                                                                                                  |                             |                         |
| **Phthalates and phthalate alternatives** |                                                                                                   |                             |                         |
| DCHP                          | Dicyclohexyl phthalate                                                                             | 84-61-7                     | X                       |
| DPeP                          | Di-n-pentyl phthalate; dipentyl phthalate; DPP                                                      | 131-18-0                    | X                       |
| DnPP                          | Di-n-propyl phthalate; dipropyl phthalate; DPRP                                                    | 131-16-8                    | X                       |
| DMP                           | Dimethyl phthalate                                                                                  |                             |                         |
| DiNP                          | Di-iso-nonyl phthalate                                                                             |                             |                         |
| **Phenols**                   |                                                                                                     |                             |                         |
| PrP                           | Propyl paraben                                                                                     | 94-13-3                     | X                       |
| 4-tert-butylphenol            |                                                                                                     | 98-54-4                     | X                       |
| 4,4'-methylenezidiphenol      |                                                                                                     | 620-92-8                    | X                       |
| 4-cumylphenol                 |                                                                                                     | 599-64-4                    | X                       |
| 4,4' biphenyldiol             |                                                                                                     | 92-88-6                     | X                       |
| 2,3-dibromo-1-propanol        |                                                                                                     | 96-13-9                     | X                       |
| 4-nitrophenol                 |                                                                                                     | 100-02-7                    | X                       |
| 2,4-dichlorophenol            |                                                                                                     | 120-83-2                    | X                       |
| 3-biphenylol                  |                                                                                                     | 580-51-8                    | X                       |
| 2(methylthio)Benothiazole     |                                                                                                     | 615-22-5                    | X                       |
| Bisphenol B                   |                                                                                                     | 77-40-7                     | X                       |
| P-phenylphenol                |                                                                                                     | 14938-35-3                  | X                       |
| Bisphenol AF                  |                                                                                                     | 1478-61-1                   | X                       |
| Benzyl paraben                |                                                                                                     |                             |                         |
| Heptyl paraben                |                                                                                                     |                             |                         |
| BADGE + Hydrolysis products of BPA |                                                                                                  |                             |                         |
| nonylphenol ethoxycarboxylate |                                                                                                     |                             |                         |
| 4-octylphenol                 |                                                                                                     |                             |                         |
| 4-tert-octylphenol            |                                                                                                     |                             |                         |
| p-phenylphenol                |                                                                                                     |                             |                         |
| BPAF                          |                                                                                                     |                             |                         |
| BPAP                          |                                                                                                     |                             |                         |
| Bisphenol F                   |                                                                                                     |                             |                         |
| Bisphenol P                   |                                                                                                     |                             |                         |
| Bisphenol S                   |                                                                                                     |                             |                         |
| Chemical Common Abbreviation | Common Name(s), Other Abbreviations                                                                 | CAS Registry Number (CAS RN) | Measured in two studies |
|------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------|------------------------|
| Bisphenol Z                  | Benzophenone                                                                                       |                              |                        |
|                              | Tetramethylbutyl phenol                                                                            |                              |                        |
|                              | Hydroquinone                                                                                       |                              |                        |
|                              | 4-hydroxybenzoic acid                                                                              |                              |                        |
|                              | 1-H-benzotriazole                                                                                 |                              |                        |
|                              | Tolytriazole                                                                                       |                              |                        |
|                              | 5-Cl-benzotriazole                                                                                |                              |                        |
|                              | 5,6-dimethyl-1-H-benzotriazole                                                                     |                              |                        |
|                              | Benzothiazole                                                                                      |                              |                        |
|                              | 2-OH-benzothiazole                                                                                |                              |                        |
|                              | 2-NH2-benzothiazole                                                                               |                              |                        |
|                              | 2-thiocyanomethylthio-benzothiazole                                                                |                              |                        |
|                              | 2-OH-4-methoxy-benzophenone                                                                      |                              |                        |
|                              | 2-OH-4-MeO-benzophenone                                                                           |                              |                        |
|                              | 2,4-2OH-benzophenone                                                                              |                              |                        |
|                              | 22'-2OH-4-MeO-benzophenone                                                                        |                              |                        |
|                              | 22'44'-4OH-benzophenone                                                                           |                              |                        |
|                              | 4-OH-benzophenone                                                                                 |                              |                        |
|                              | 2-ethylhexyl 4-hydroxybenzoate                                                                     |                              |                        |
|                              | 2-sec-butylphenol                                                                                 |                              |                        |
|                              | 3-hydroxybenzophenone                                                                             |                              |                        |
|                              | 4,4'bipheyldiol                                                                                   |                              |                        |
|                              | 4-sec-butylphenol                                                                                 |                              |                        |
|                              | 3,4- dichlorophenol                                                                               |                              |                        |
|                              | Bayer 28589                                                                                        |                              |                        |

**Perfluoroalkyl Substances (PFAS)**

| Common Name(s), Other Abbreviations | CAS Registry Number (CAS RN) | Measured in two studies |
|-------------------------------------|-----------------------------|------------------------|
| PFPeA                              | 45167-47-3                  | X                      |
| PFUND A                           | 2058-94-8                   | X                      |
| PFT A                              | 862374-87-6                 | X                      |
| PFT A                              | 365971-87-5                 | X                      |
| MeFOSE                             | 24448-09-7                  | X                      |
| EtFOSE                             | 1691-99-2                   | X                      |
| 6:2 FTOH                           | 647-42-7                    | X                      |
| 10:2 FTOH                          | 865-86-1                    | X                      |
| Chemical Common Abbreviation | Common Name(s), Other Abbreviations | CAS Registry Number (CAS RN) | Measured in two studies |
|------------------------------|-------------------------------------|------------------------------|-------------------------|
| PFDS                         | Perfluorodecane sulfonate           |                              |                         |
| PFHpS                        | Perfluorooctane sulfonate           |                              |                         |
| EtFOSA                       | N-ethylperfluorooctanesulfonamide   |                              |                         |
| MeFOSA                       | N-methylperfluorooctanesulfonamide  |                              |                         |
| PFOSA                        | Perfluorooctanesulfonamide          |                              |                         |
| **Fragrances**               |                                     |                              |                         |
| AHTN                         |                                     |                              |                         |
| HCA                          |                                     |                              |                         |
| ethyl methylphenylglycidate  |                                     |                              |                         |
| alpha-isomethylionone        |                                     |                              |                         |
| Lilial                       |                                     |                              |                         |
| methyl salicylate            |                                     |                              |                         |
| 3-hexenyl salicylate         |                                     |                              |                         |
| benzyl salicylate            |                                     |                              |                         |
| phenylethyl salicylate       |                                     |                              |                         |
| Musk dimethyl indane         |                                     |                              |                         |
| musk ketone                  |                                     |                              |                         |
| musk xylene                  |                                     |                              |                         |
| musk 36A                     |                                     |                              |                         |
| amyl cinnamal                |                                     |                              |                         |
| Cedrene                      |                                     |                              |                         |
| n-hexyl salicylate           |                                     |                              |                         |
| Maltol                       |                                     |                              |                         |
| Menthol                      |                                     |                              |                         |
| 4H-pyran-4-1, 2,3-dihydro-3,5-dihydroxy-6-methyl | |                         |
| 2-methoxy-4-vinylphenol      |                                     |                              |                         |
| Piperonal                    |                                     |                              |                         |
| Vanillin                     |                                     |                              |                         |
| caryophyllene                |                                     |                              |                         |
| Coumarin                     |                                     |                              |                         |

Chemicals measured in 2 studies are denoted with an X; chemicals measured in only one study are not marked.
Figure S1. Map of the United States with circles indicating the locations where dust samples were collected for studies included in the meta-analysis. The size of the circles is proportional to the number of studies that collected dust and, for circles representing 2 or more studies, is labeled with the number of studies. If a study collected samples in more than one location, it is represented with a circle in each location. If a study tested samples for more than one chemical class, each class is represented in a separate color-coded circle. The circle located off the coast of New England represents a study that did not disclose a precise location. Studies included in the analysis are listed in Table S3. Base U.S. map from clipartbest.com
Figure S2: Number of samples collected in various indoor environments. Samples grouped by chemical class. Studies used were the ones included in the meta-analysis (studies listed in Table S3).
**Table S9:** Chemicals with highest detection frequencies of the chemicals measured in at least 3 datasets.

| Chemical          | Class    | # datasets | Detected  |
|-------------------|----------|------------|-----------|
| DEHP              | Phthalate| 8          | 100%      |
| DEHA              | Phthalate| 4          | 100%      |
| HHCB              | Fragrance| 3          | 100%      |
| BBzP              | Phthalate| 8          | 98-100%   |
| TPHP              | RFR      | 8          | 98-100%   |
| TDCIPP            | RFR      | 14         | 95-100%   |
| DnBP              | Phthalate| 7          | 95-100%   |
| DiBP              | Phthalate| 7          | 95-100%   |
| HBCDD (and isomers)| RFR     | 10         | 92-100%   |
| MeP               | Phenol   | 3          | 90-100%   |

Detection frequency in each dataset was recorded and compared across datasets. Studies included in this analysis are listed in Table S3. Chemical abbreviations are defined in the text, in Table 1.
| Chemical   | Class       | # Datasets Pooled | GM (ng/g)                  | 95% CI                  | $I^2$ | $\tau$ |
|------------|-------------|-------------------|---------------------------|-------------------------|-------|--------|
| DEHP       | Phthalate   | 7                 | 237542.06                 | (168030.37, 335843.31)  | 85.64% | 0.4215 |
| BBzP       | Phthalate   | 6                 | 44293.80                  | (22074.98, 88876.23)   | 93.04% | 0.8354 |
| DnBP       | Phthalate   | 6                 | 13643.25                  | (9780.05, 19030.53)    | 84.49% | 0.3779 |
| DEHA       | Phthalate   | 4                 | 6162.27                   | (4102.29, 9256.67)     | 85.69% | 0.3833 |
| DiBP       | Phthalate   | 6                 | 3588.18                   | (1968.25, 6541.36)     | 94.95% | 0.7293 |
| DEP        | Phthalate   | 6                 | 2033.47                   | (1148.14, 3601.48)     | 93.20% | 0.6864 |
| DnOP       | Phthalate   | 3                 | 1463.84                   | (1020.25, 2023.53)     | 63.04% | 0.2401 |
| DnHP       | Phthalate   | 4                 | 1307.93                   | (927.69, 1844.20)      | 64.81% | 0.2794 |
| TCIIPP     | RFR         | 5                 | 3309.33                   | (2306.30, 4748.58)     | 0.00%  | 0.00   |
| TPHP       | RFR         | 8                 | 3299.41                   | (1658.72, 6562.32)     | 93.85% | 0.9554 |
| TDCIPP     | RFR         | 14                | 3180.52                   | (2298.93, 4400.18)     | 76.03% | 0.5219 |
| TCEP       | RFR         | 6                 | 1067.95                   | (429.45, 2655.80)      | 92.03% | 1.0810 |
| EH-TBB     | RFR         | 15                | 312.50                    | (139.32, 700.92)       | 95.07% | 1.5325 |
| HBCDD      | RFR         | 9                 | 275.17                    | (214.26, 353.40)       | 0.00%  | 0.00   |
| BEH-TEBP   | RFR         | 15                | 282.51                    | (130.28, 612.59)       | 95.24% | 1.4695 |
| aHBCD      | RFR         | 5                 | 127.41                    | (82.61, 196.53)        | 49.71% | 0.3449 |
| DBDPE      | RFR         | 8                 | 94.30                     | (66.66, 133.39)        | 41.36% | 0.3146 |
| TBBPA      | RFR         | 5                 | 105.48                    | (28.11, 395.88)        | 91.14% | 1.4391 |
| gHBCD      | RFR         | 5                 | 100.85                    | (59.03, 172.29)        | 66.89% | 0.9495 |
| BTBPE      | RFR         | 9                 | 27.00                     | (21.20, 34.39)         | 16.31% | 0.1490 |
| bHBCD      | RFR         | 5                 | 26.91                     | (20.19, 35.86)         | 0.00%  | 0.00   |
| aDDC-CO    | RFR         | 3                 | 6.08                      | (3.13, 11.81)          | 82.03% | 0.5301 |
| sDDC-CO    | RFR         | 3                 | 2.92                      | (2.19, 3.88)           | 0.00%  | 0.00   |
| HHCBO      | Fragrance   | 3                 | 1977.32                   | (550.54, 7101.06)      | 96.83% | 1.1114 |
| NPZEO      | Phenol      | 3                 | 6972.30                   | (3722.31, 13059.88)    | 91.72% | 0.5305 |
| NP         | Phenol      | 3                 | 4595.35                   | (2290.21, 9221.56)     | 92.87% | 0.5874 |
| NPIEO      | Phenol      | 3                 | 3516.78                   | (2023.73, 6111.33)     | 92.49% | 0.4691 |
| MeP        | Phenol      | 4                 | 1510.66                   | (705.50, 3234.73)      | 94.20% | 0.7515 |
| OPZEO      | Phenol      | 3                 | 622.54                    | (329.94, 1174.62)      | 91.75% | 0.5366 |
| OPIEO      | Phenol      | 3                 | 552.30                    | (366.65, 832.06)       | 85.04% | 0.3329 |
| 2,4-DHBZON | Phenol      | 3                 | 339.95                    | (123.08, 939.08)       | 96.55% | 0.8821 |
| BPA        | Phenol      | 4                 | 199.46                    | (25.55, 1557.29)       | 99.02% | 2.0849 |
| BuP        | Phenol      | 3                 | 102.37                    | (21.21, 493.98)        | 97.70% | 1.3719 |
| EtP        | Phenol      | 3                 | 80.73                     | (23.76, 274.27)        | 96.83% | 1.0577 |
| 8:2 FTOH   | PFAS        | 4                 | 39.48                     | (8.29, 187.99)         | 97.26% | 1.5652 |
| PFOS       | PFAS        | 9                 | 38.91                     | (17.47, 86.69)         | 95.55% | 1.1893 |
| PFOA       | PFAS        | 9                 | 37.34                     | (20.26, 68.81)         | 94.33% | 0.9230 |
| PFHxS      | PFAS        | 6                 | 16.97                     | (4.17, 69.02)          | 97.74% | 1.7289 |
| PFNA       | PFAS        | 8                 | 14.97                     | (9.98, 22.46)          | 83.88% | 0.5221 |
| PFHpA      | PFAS        | 5                 | 14.37                     | (6.21, 33.28)          | 94.33% | 0.9230 |
| PFDoA      | PFAS        | 3                 | 13.72                     | (4.91, 38.32)          | 93.55% | 0.8732 |
| PFHxA      | PFAS        | 5                 | 11.40                     | (4.82, 26.96)          | 94.50% | 0.9497 |
| PFDA       | PFAS        | 6                 | 10.92                     | (6.23, 19.14)          | 89.18% | 0.6479 |
| PFBA       | PFAS        | 3                 | 8.30                      | (3.72, 18.54)          | 85.32% | 0.6462 |
| PFBS       | PFAS        | 3                 | 5.10                      | (1.66, 15.66)          | 97.11% | 0.9755 |

Data are plotted in Figure 2. $I^2$ denotes the percentage of overall heterogeneity that is due to between-study heterogeneity; a large $I^2$ represents considerable variation between studies. $\tau$ is a point estimate of the magnitude of heterogeneity among study estimates, and can be understood as $\sqrt{\text{Total variance} \ - \ \text{within study variance}}$. 

S20
Table S11: Comparison of dust levels by environment

| Compound | Pooled GMs (95% CI) ng/g | P for difference |
|----------|--------------------------|------------------|
|          | By Environment           | All dust data    | Residential Only | Non-Residential Only |
| TDICPP   | 3180.52 (2298.93, 4400.18) | 2406.19 (1793.28, 3228.91) | 6005.31 (3327.25, 10838.93) | 0.0043** |
| EH-TBB   | 312.50 (139.32, 700.92)   | 206.52 (126.41, 337.41)   | 1003.25 (64.19, 15680.92)  | 0.026*   |
| BEH-TEBP | 282.51 (130.28, 612.59)   | 208.08 (137.73, 314.32)   | 641.24 (35.17, 11690.13)   | 0.11     |
| PFOS     | 38.91 (17.47, 86.69)      | 54.09 (22.92, 127.68)     | 25.18 (5.79, 109.55)       | 0.36     |
| PFOA     | 37.34 (20.26, 68.81)      | 47.07 (28.53, 77.68)      | 26.00 (8.03, 84.20)        | 0.32     |
| PFNA     | 14.97 (9.98, 22.46)       | 12.68 (10.04, 16.03)      | 18.22 (7.85, 42.29)        | 0.38     |

Environmental comparisons were done comparing datasets collected in residential environments to those collected in non-residential environments. The P value is the significance value assigned to the categorical environment or time variable in the meta-regression model. Studies included in this analysis are listed in Table S3. Chemical abbreviations are defined in the text, in Table 1.
Figure S3. Filled points represent geometric mean (GM) and maximum values for each chemical. The dotted gray line represents the pooled geometric mean. Studies are labeled by number on the X axis. In cases where a study contributed more than one dataset, each dataset is labeled separately (e.g., 7.1 and 7.2 are two datasets from study 7). Study numbering is consistent with Table S3; please see Table S3 legend for key.
References

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