Silent Spring Institute
Brown University
Communities for a Better Environment

617.332.4288 www.silentspring.org
www.brown.edu
510.302.0430 www.cbecal.org

Dear [Participant Name]:

Thank you very much for participating in the Household Exposure Study. When we visited your home to collect air and dust samples for the study last year, you asked us to report back to you on the results; so we are enclosing these results for you.

We tested 50 homes for 185 chemicals. We are enclosing a summary of what was found in your home. The results are shown in more detail in 10 graphs, grouped by chemical families (for example, pesticides) and type of sample (air or dust). For each chemical, the concentration measured in your home is shown in comparison with all 50 homes in the study. The page entitled *A Guide to Reading Your Results* provides more information about how to read your graphs.

We are doing this study because most people spend much of their time at home, so chemicals that people are exposed to at home can be important for health. We are studying chemicals that come from activities inside the home and pollutants that may come from outside. For some chemicals, your results can be compared to a government health guideline. For other chemicals, scientists don't know yet how they affect health, and measuring household levels is the first step.

Some people in the study may want to make changes to reduce the levels of some of the chemicals we found. To help people think about ways to reduce exposure, we have included information about the products, materials, or activities that may be sources of the chemicals in your home or local environment. This information is in your summary and in a detailed table listing each chemical along with a key to the abbreviations used in the graphs.

We know that some people are more comfortable than others reading graphs and tables like the ones included, and we would be glad to talk with you to help you understand your results or answer any questions. Please call Communities for a Better Environment Project Coordinator, Carla Perez, at 510-302-0430 ext. 11 if you have any questions about any parts of the study.

In addition, we will be inviting you to a series of community information sessions over the next two years where we will discuss what we learned from this sampling program. We deeply appreciate your active participation in this project.

Sincerely,
Carla M. Perez, Northern California Program Director
Communities for a Better Environment

Julia G. Brody, Ph.D.
Executive Director
Silent Spring Institute

Summary of Your Results

We tested for 185 chemicals in this study. Overall, we detected many chemicals in every home. Your results are shown in the enclosed graphs.

For your home, we detected:

- **22** chemicals in your indoor air,
- **40** in your dust sample.

A sample of the outdoor air was not collected from your home.

Pesticides

We found nine pesticide ingredients in your dust (page 8), including high levels of some currently used insecticides ("bug killers") such as chlorpyrifos (Chlpy), propoxur (PrPx) and carbaryl (Carb). We also found DDT, an insecticide that is no longer used in the United States. We detected few pesticides in your indoor air, but found high levels of oPPh, a chemical often found in household cleaning products (page 2). You can reduce your exposure to pesticides by using less toxic methods to control indoor pests and clean your home.

Polychlorinated Biphenyls (PCBs)

Your dust sample had higher levels of PCBs compared to other homes we tested (page 9, PCB52, PCB105, PCB153). We also detected these substances in your indoor air (page 4). Open use of these chemicals was banned in 1977, but they can remain in the environment for a long time. Former uses of PCBs include flame retardants, lubricants, and adhesives. PCBs were also used in electric capacitors, transformers, and hydraulic systems.

Phthalates – Vinyl, Other Plastics, and Cosmetics

Among the 50 homes in our study, you had one of the highest levels of DEP, DEHP and DIBP in your dust (page 9), and several phthalates were also detected in your indoor air (page 4). We can't tell from this test exactly what the sources of these chemicals are, but DEP is a common ingredient in fragrances and products like cologne. DEHP and DIBP are plastic softeners, and indoor sources could include vinyl or plastic products (ex. shower curtain, plastic toys). Phthalates were banned from children's toys and cosmetics in Europe, but are still widely used in the United States, and we found phthalates in every house we tested.

Polycyclic Aromatic Hydrocarbons (PAHs)

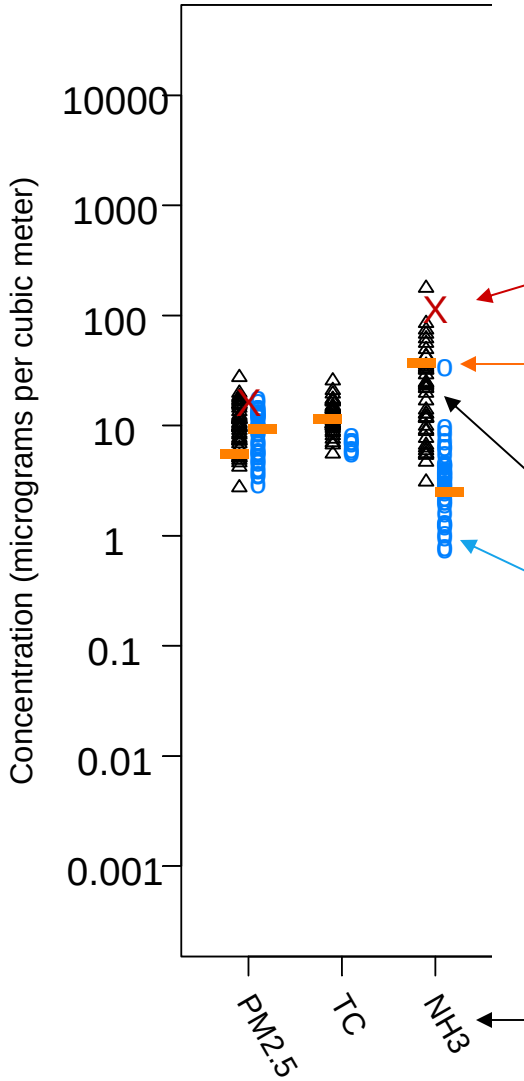
There were many types of PAHs detected in your indoor air and dust, some of which were higher than other homes we tested (pages 5, 6, 10, & 11). Common indoor sources of PAHs are cooking, smoking, burning incense, and outdoor air pollution. Common outdoor sources of PAHs are emissions from cars, buses, trucks, and industries.

Other

We found PBDE flame retardants in your dust (page 9). PBDEs are in foam furniture, cushions, and synthetic carpets. These chemicals were banned in Europe because of effects on thyroid hormones. We did not test the outdoor air near your home, and your indoor air was not tested for the chemicals shown on page 3 and page 7.

The study team is continuing research to learn how to reduce exposures to pollutants in homes. If you have any questions, please call us at 510-302-0430 ext. 11.

A Guide to Reading Your Results



X shows the current EPA health guideline. If your bar is above the **X**, your results are higher than the guideline.

Your results are marked by orange bars.

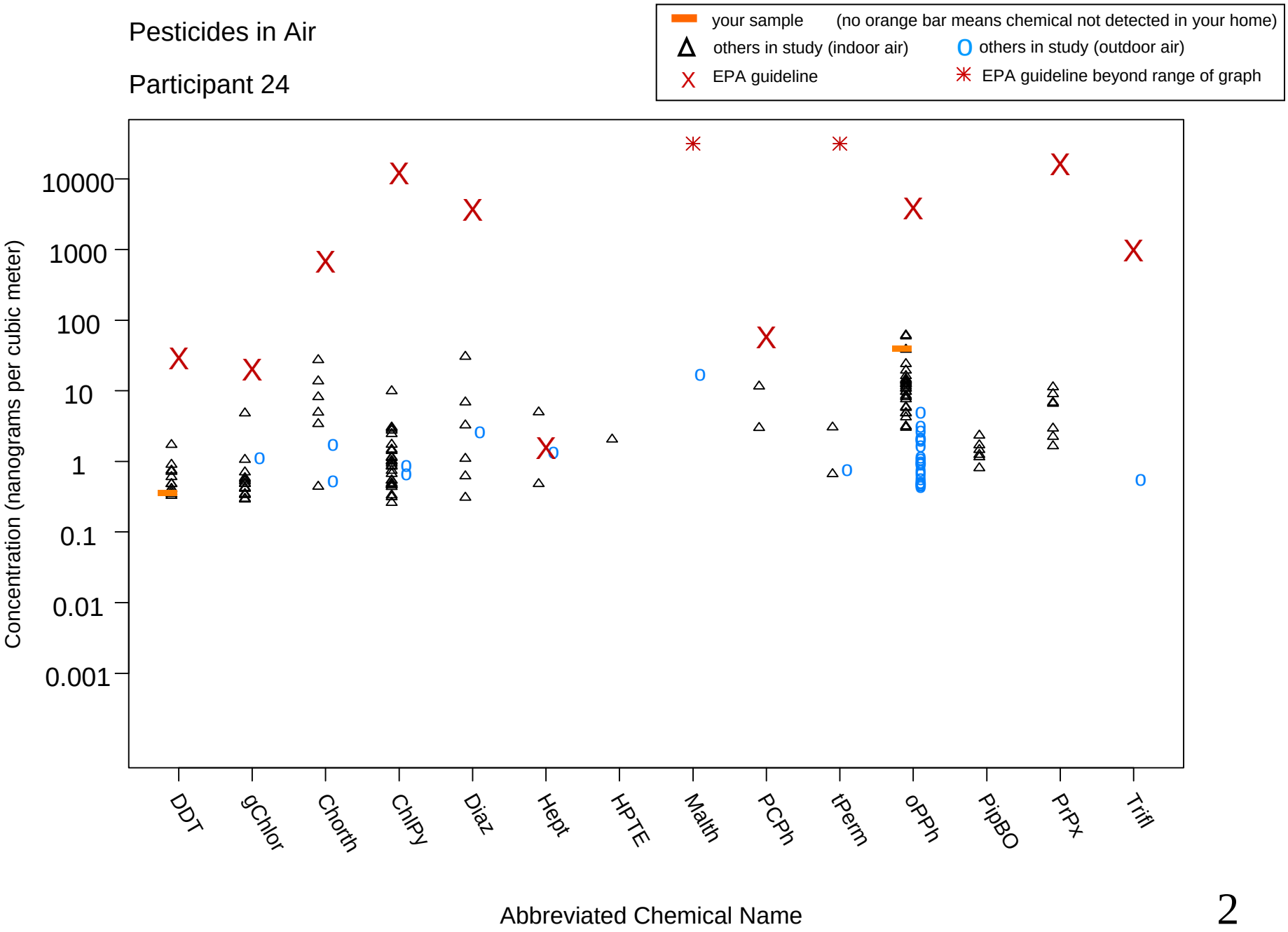
If there is no orange bar, then the chemical was not detected in your home.

Each △ represents one other home's indoor air result in the study, and each o represents one other home's outdoor air result.

The column of circles shows the range of concentrations measured.

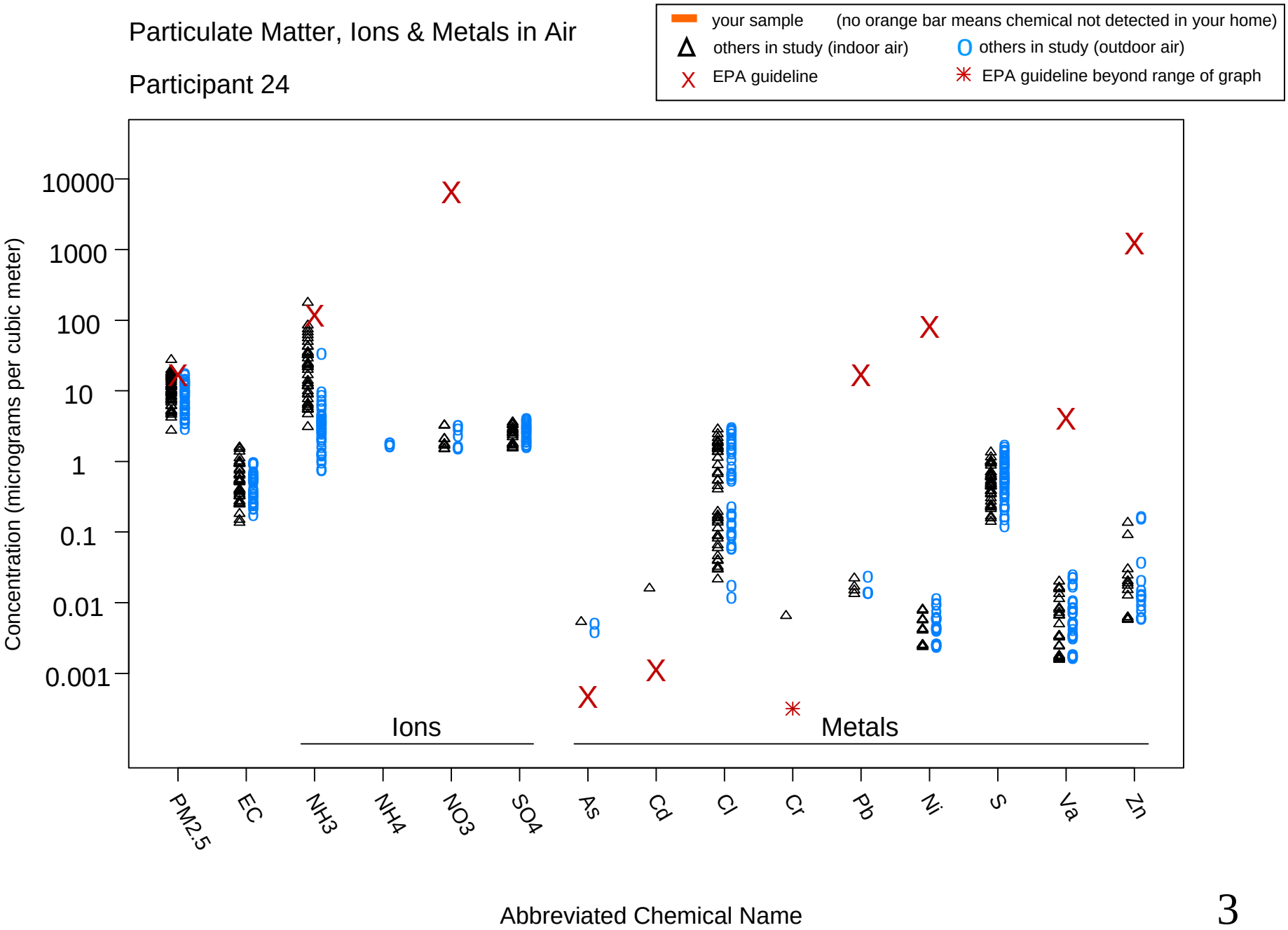
If your bar is near the top, your result was higher than most; if your bar is near the bottom, your result was lower than most.

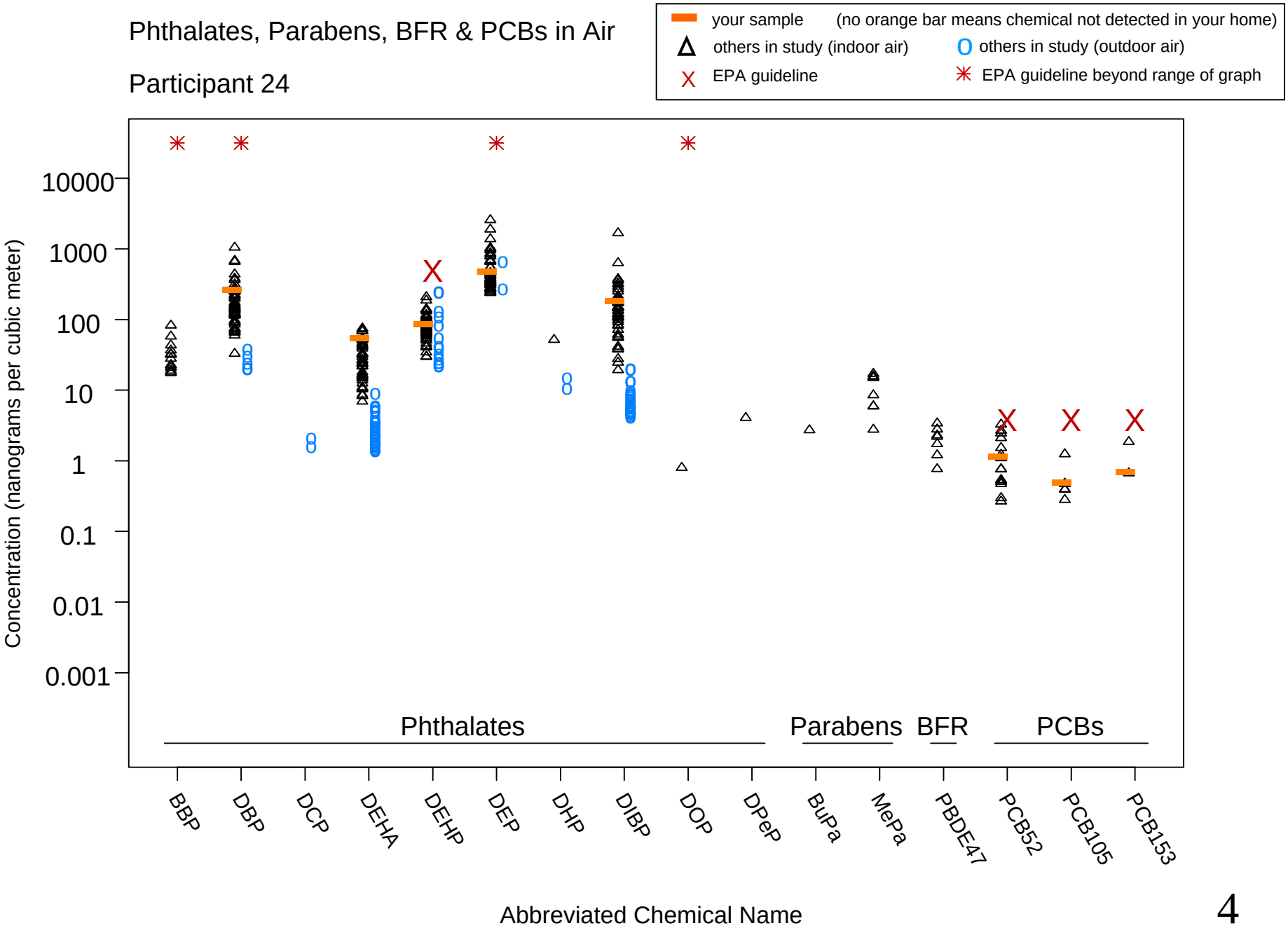
You can find more information about each chemical by matching the abbreviation on the graph with the full name on the "Sources" chart.


Pesticides in Air
Participant 24
your sample
(no orange bar means chemical not detected in your home)
others in study (indoor air)
others in study (outdoor air)
EPA guideline
EPA guideline beyond range of graph
Concentration (nanograms per cubic meter)
10000
1000
100
10
1
0.1
0.01
0.001
DDT
gChlor
Chorth
ChlPy
Diaz
Hept
HPTE
Malth
PCPh
tPerm
oPPh
PipBO
PrPx
Trifl
Abbreviated Chemical Name

Particulate Matter, Ions & Metals in Air

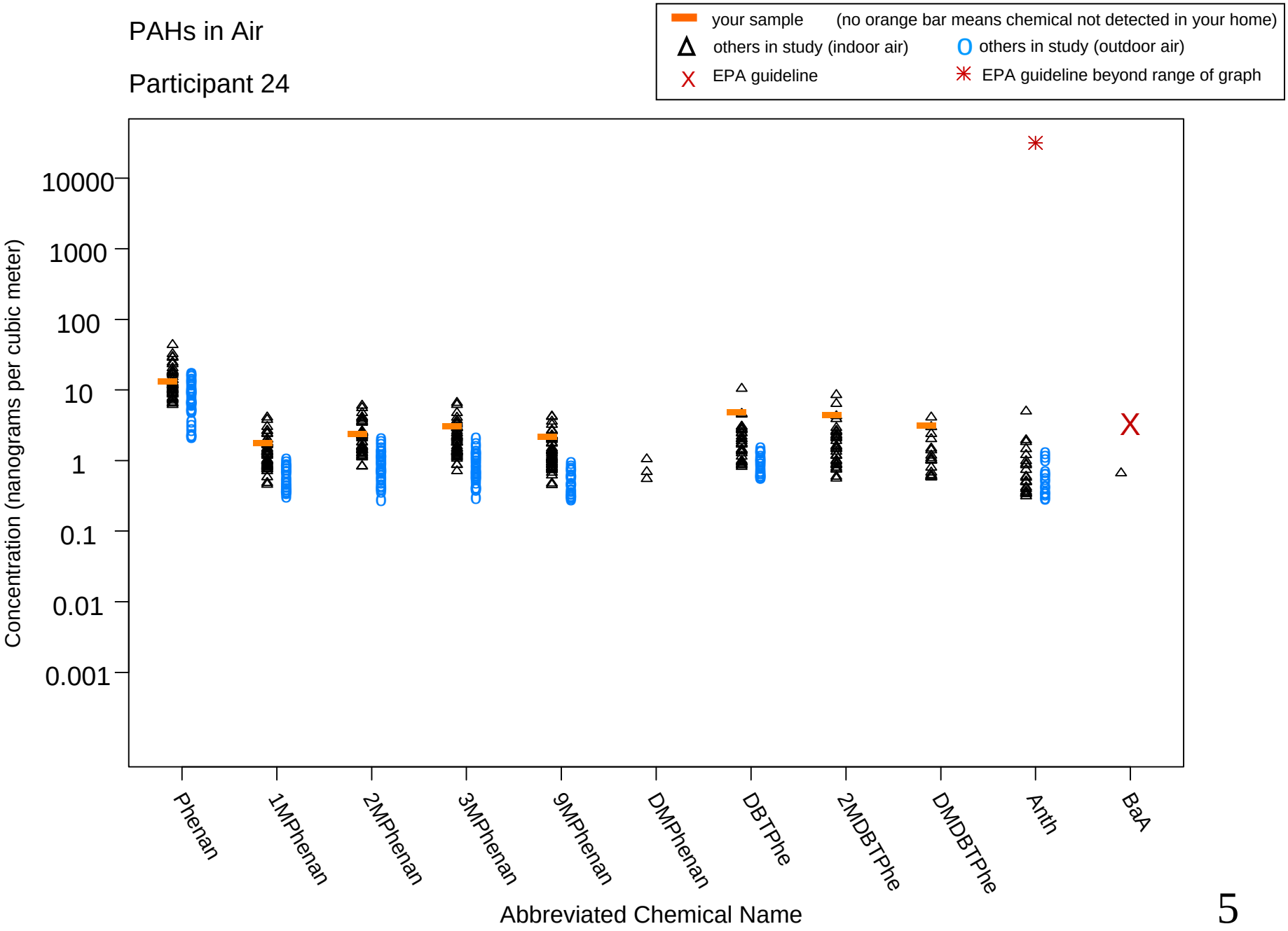
Participant 24

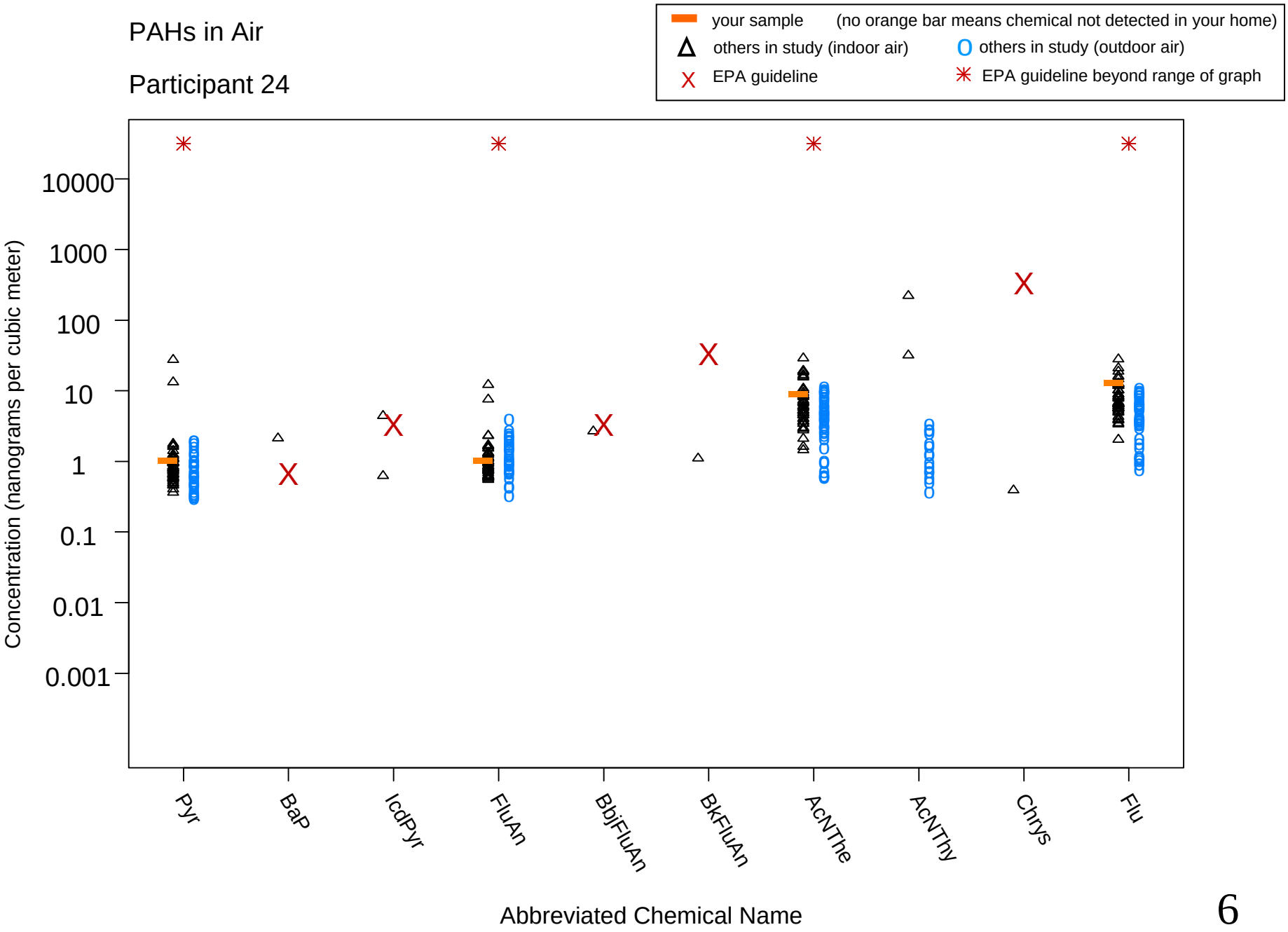


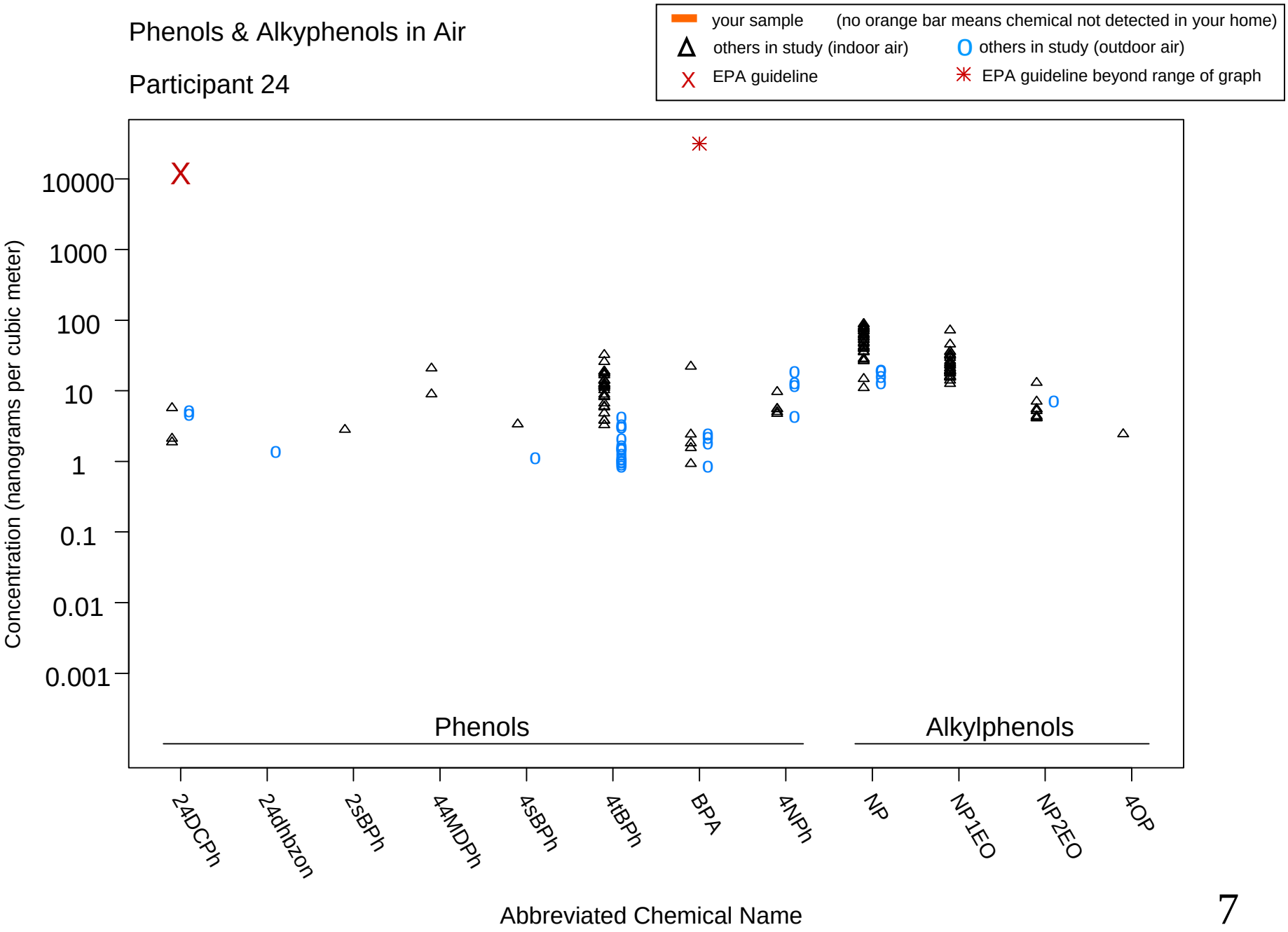

Phthalates, Parabens, BFR & PCBs in Air
Participant 24
your sample
(no orange bar means chemical not detected in your home)
others in study (indoor air)
others in study (outdoor air)
EPA guideline
EPA guideline beyond range of graph
Concentration (nanograms per cubic meter)
10000
1000
100
10
1
0.1
0.01
0.001
Phthalates
Parabens
BFR
PCBs
BBP
DBP
DCP
DEHA
DEHP
DEP
DHP
DIBP
DOP
DPeP
BuPa
MePa
PBDE47
PCB52
PCB105
PCB153
Abbreviated Chemical Name

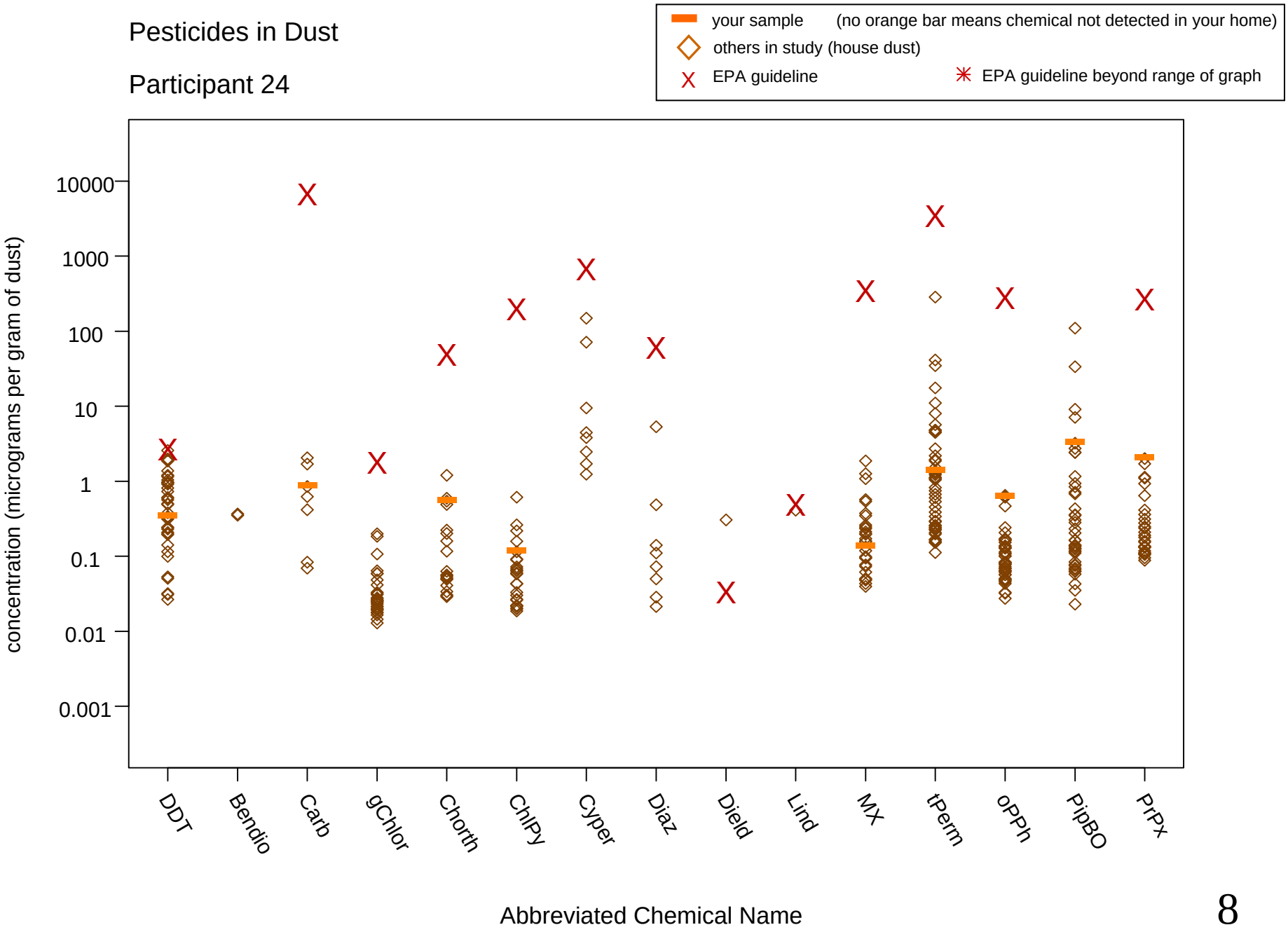
PAHs in Air

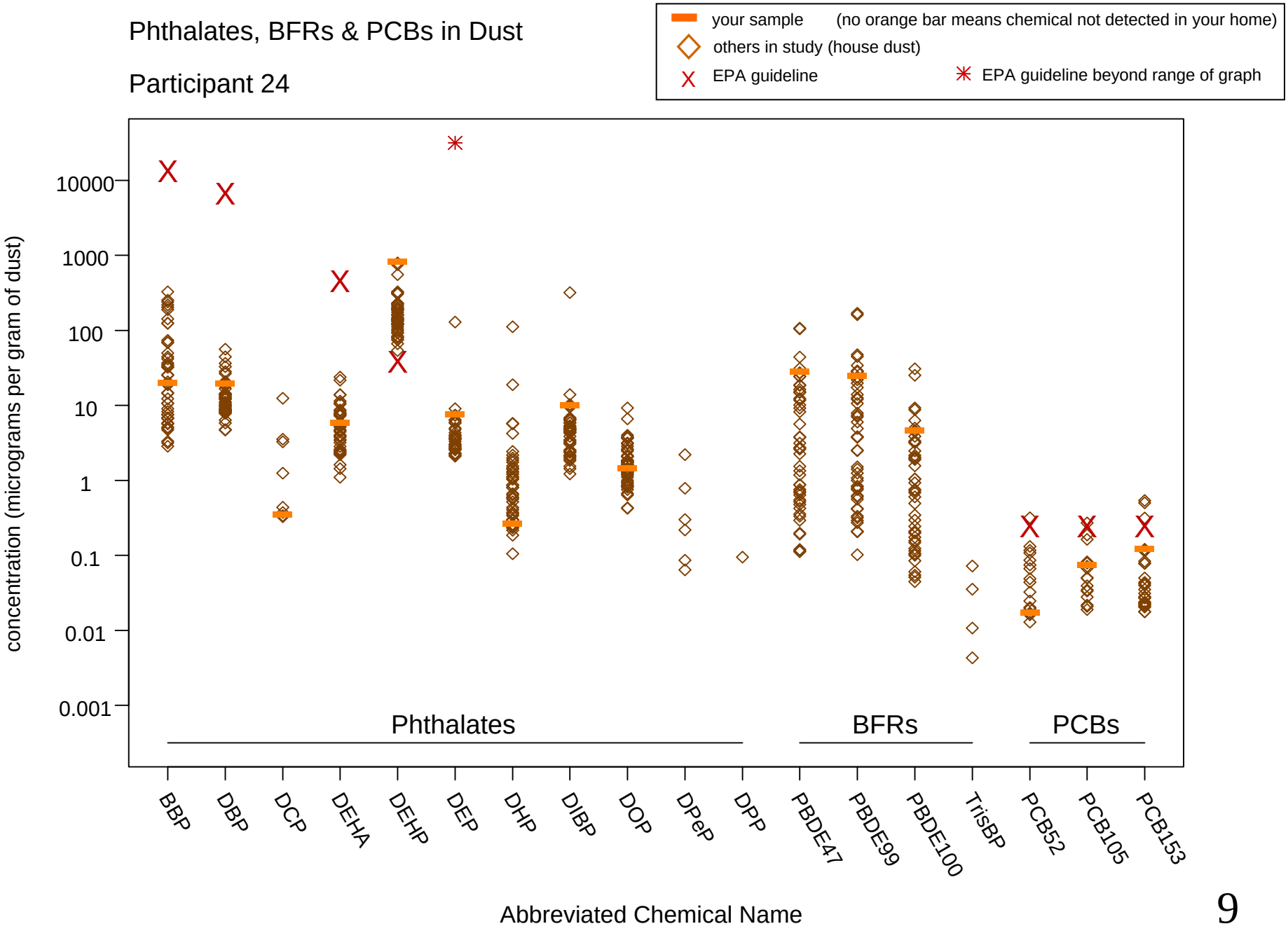
Participant 24




PAHs in Air
Participant 24
your sample
(no orange bar means chemical not detected in your home)
others in study (indoor air)
others in study (outdoor air)
EPA guideline
EPA guideline beyond range of graph
Concentration (nanograms per cubic meter)
10000
1000
100
10
1
0.1
0.01
0.001
Pyr
BaP
IcdPyr
FluAn
BbjFluAn
BkFluAn
AcNThe
AcNThy
Chrys
Flu
Abbreviated Chemical Name

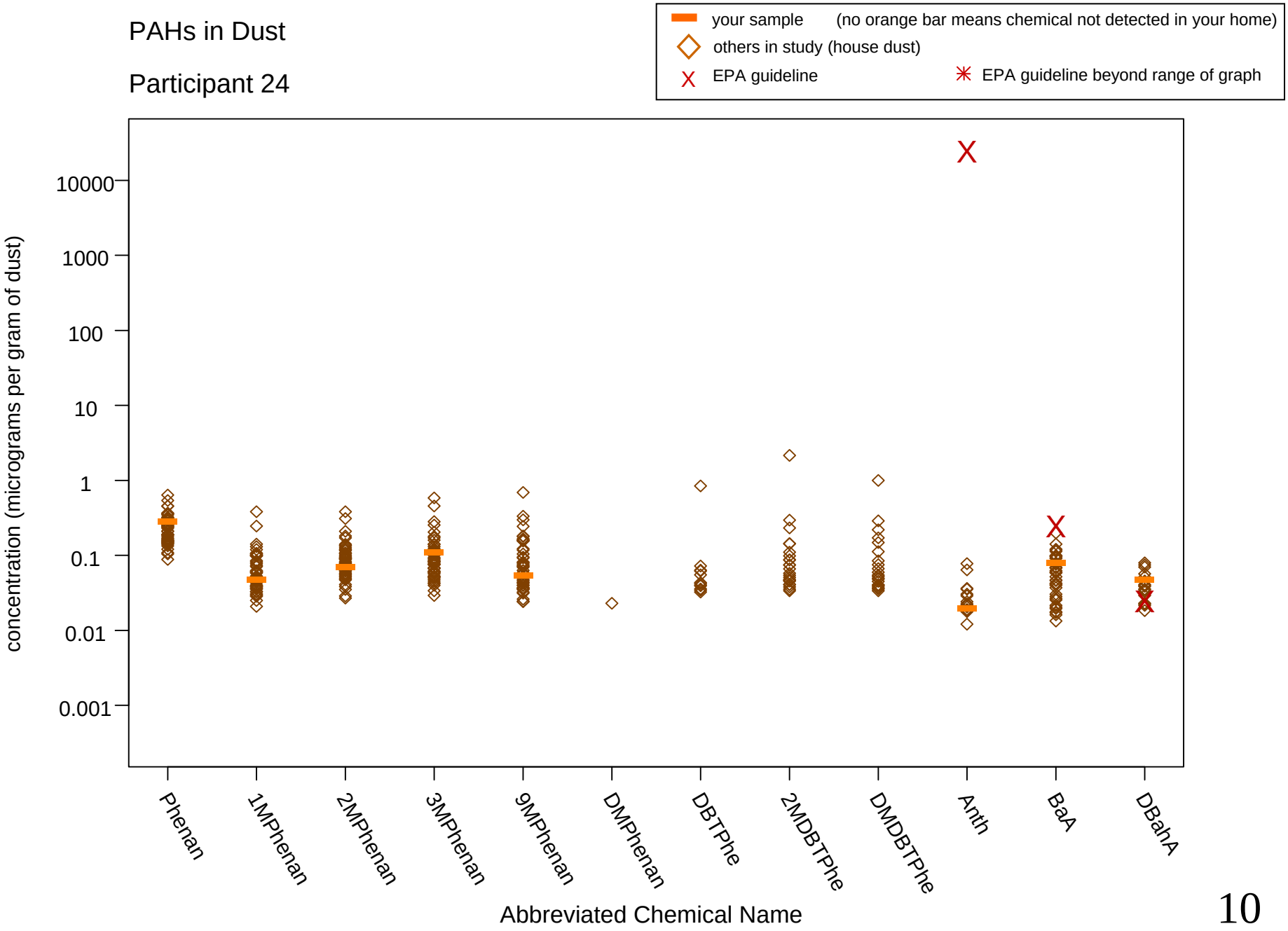

Phenols & Alkyphenols in Air
Participant 24
your sample
(no orange bar means chemical not detected in your home)
others in study (indoor air)
others in study (outdoor air)
EPA guideline
EPA guideline beyond range of graph
Concentration (nanograms per cubic meter)
10000
1000
100
10
1
0.1
0.01
0.001
Phenols
Alkylphenols
24DCPh
24dhbzon
2sBPh
44MDPh
4sBPh
4tBPh
BPA
4NPh
NP
NP1EO
NP2EO
4OP
Abbreviated Chemical Name

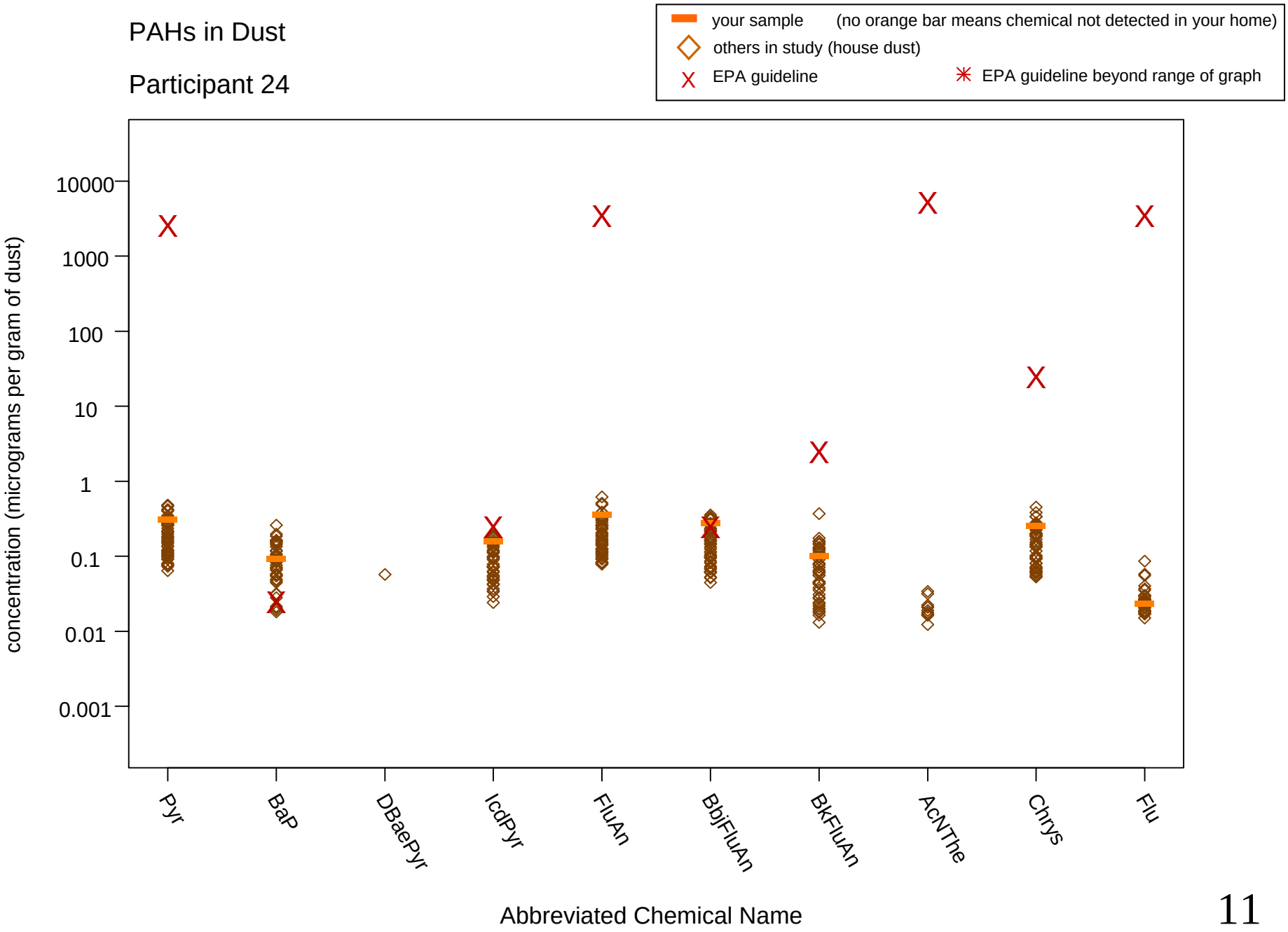

Pesticides in Dust
Participant 24
your sample (no orange bar means chemical not detected in your home)
others in study (house dust)
EPA guideline
EPA guideline beyond range of graph
concentration (micrograms per gram of dust)
10000
1000
100
10
1
0.1
0.01
0.001
DDT
Bendio
Carb
gChlor
Chorth
ChlPy
Cyper
Diaz
Dield
Lind
MX
tPerm
oPPh
PipBO
PrPx
Abbreviated Chemical Name


Phthalates, BFRs & PCBs in Dust
Participant 24
your sample (no orange bar means chemical not detected in your home)
others in study (house dust)
EPA guideline
EPA guideline beyond range of graph
concentration (micrograms per gram of dust)
10000
1000
100
10
1
0.1
0.01
0.001
Phthalates
BFRs
PCBs
BBP
DBP
DCP
DEHA
DEHP
DEP
DHP
DIBP
DOP
DPeP
DPP
PBDE47
PBDE99
PBDE100
TrisBP
PCB52
PCB105
PCB153
Abbreviated Chemical Name

PAHs in Dust

Participant 24




PAHs in Dust
Participant 24
your sample
(no orange bar means chemical not detected in your home)
others in study (house dust)
EPA guideline
EPA guideline beyond range of graph
concentration (micrograms per gram of dust)
10000
1000
100
10
1
0.1
0.01
0.001
Pyr
BaP
DBaePyr
IcdPyr
FluAn
BbjFluAn
BkFluAn
AcNThe
Chrys
Flu
Abbreviated Chemical Name

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
Pesticides			50 Homes Tested	43 Homes Tested	49 Homes Tested
4,4'-DDT	DDT	Widely used insecticide (bug killer) prior to 1972 when EPA banned all uses in the US except for public health emergencies. Currently used outside the US for disease control (malaria and other insect transmitted diseases).	12 (24%)	0	42 (86%)
bendiocarb	Bendio	Insecticide (bug killer) used for cockroaches, soil insects, mosquitoes, flies, wasps, ants, fleas. All bendiocarb products voluntarily cancelled in 2001.	-	-	2 (4%)
carbaryl	Carb	Insecticide (bug killer) used for crops, livestock, and poultry, household, garden, lawn, pets; molluscicide; veterinarian medication; former use (sewage treatment plants). Trade name is Sevin.	-	-	7 (14%)
chlordane	gchlor	Former insecticide (bug killer) used for vegetables, termites, lawns, and fruit. Major uses including termite control were stopped in 1988.	16 (32%)	1 (2%)	30 (61%)
chlorothalonil	Chorth	Fungicide (to treat plant diseases) used for vegetable crops, peanuts, lawns, and paint; wood preservative.	6 (12%)	2 (5%)	20 (41%)
chlorpyrifos	ChlPy	Insecticide (bug killer) used for ticks, mosquitoes, soil pests, other household pests, in animal houses, stored products, foliage, corn, alfalfa, cotton, sorghum, citrus, deciduous fruits, and nuts. EPA restricted residential and indoor uses in 2000.	28 (56%)	2 (5%)	25 (51%)
cypermethrin	Cyper	Insecticide (bug killer) used for mosquitoes, cockroaches, houseflies, crops; veterinarian medication.	-	-	8 (16%)
diazinon	Diaz	Insecticide (bug killer) used for over-the-counter ant and roach sprays, garden and lawn sprays, vegetable crops, tobacco, corn, citrus. Sales for residential use were banned by EPA in 2004, but limited use continues.	6 (12%)	1 (2%)	8 (16%)
dieldrin	Dield	Former insecticide (bug killer) used for malaria, locusts, termites, corn, and citrus; termite-proofer; timber preservation. In 1974 EPA restricted its use to termite control, non-food seed and plant treatment, and nonagricultural applications. Not registered for current use in the United States.	-	-	1 (2%)

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
heptachlor	Hept	Former insecticide (bug killer) used for agricultural crops, lawn and garden, termite control, seed treatment; repellant spray used for flies, fleas, and mosquitoes. Most registered uses were cancelled in 1978.	2 (4%)	1 (2%)	-
HPTE	HPTE	Breakdown product of methoxychlor (see methoxychlor).	1 (3%)*	0**	-
lindane	Lind	Former insecticide (bug killer) used for plant-eating and soil-inhabiting insects in crops and seed treatments, public-health pests such as lice, scabies mites, and animal skin parasite; indoor animal treatment; rodent control. EPA cancelled remaining registrations in 2006.	-	-	1 (2%)
malathion	Malth	Insecticide (bug killer) used for fruit flies and mosquitoes in gardens, lawns, crops, golf courses and storage bins; public health (cattle, poultry, dogs, cats, human head and body lice, household insects, and stored grain); mites and ticks; transportation equipment. Registration currently being reviewed by the EPA.	0	1 (2%)	-
methoxychlor	MX	Former insecticide (bug killer) used for flies, mosquitoes, and other pests in cattle, goats, sheep, pigs, fruit and shade trees, vegetables, vines, flowers, and in forestry; DDT replacement in animal houses, dairies, homes, and industrial premises. Use cancelled by the EPA in 2002.	-	-	29 (59%)
pentachlorophenol	PCPh	Insecticide (bug killer); herbicide (weed killer); molluscicide; fungicide; bactericide for drilling fluids; algacide; germicide (trays in mushroom houses); common wood preservative. No longer available for over-the-counter sale in the United States but currently registered for use in United States pending pre-Registration Eligibility Decision by the EPA.	2 (6%)	0**	-
trans-permethrin	tPerm	Insecticide (bug killer) used for crops, livestock, household pests (ants cockroaches), mosquitoes, head and body lice; nematocide; acaricide; wood preservative; tick repellent; medication; veterinarian medication.	2 (4%)	1 (2%)	48 (98%)

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
o-phenylphenol	oPPh	Fungicide for crops; germicide; fumicide; household disinfectant; preservative (stains, paints, metal working fluids, textiles, adhesives, cleaning products); ingredient of dyes.	28 (56%)	20 (47%)	47 (96%)
piperonyl butoxide	PipBO	Insecticide synergist (enhances the insecticidal properties of pyrethrins) used for household pests, crops, livestock, storage facilities, mosquito control; medication.	6 (12%)	0	43 (88%)
propoxur	PrPx	Insecticide (bug killer) used for cockroaches, ants, hornets, flies, mosquitoes, wooly aphids, bugs, and leaf hoppers; molluscicide; veterinarian medication.	7 (14%)	0	28 (57%)
trifluralin	Trifl	Herbicide (weed killer) used for crops, yards, and houses.	0	1 (2%)	-
Particulate Matter, Ions and Metals			**42 Homes Tested**	**42 Homes Tested**	**No Homes Tested**
particulate matter	PM2.5	Automobile emissions, petroleum refining, power plants, cigarette smoke, home heating, frying food, and burning fossil fuels, candles and incense.	42 (100%)	42 (100%)	-
elemental carbon	EC	See particulate matter.	38 (90%)	30 (17%)	-
ammonia	NH3	Petroleum refining and other industrial emissions; agriculture (fertilizer, manure), automobile exhaust, household cleaners, sewage, and natural sources.	42 (100%)	42 (100%)	-
ammonium	NH4	See ammonia.	0	5 (12%)***	-
nitrate	NO3	Automobile exhaust, petroleum refining, burning fossil fuels, fertilizer, sewage, and natural sources.	9 (21%)	7 (17%)***	-
sulfate	SO4	Shipping, coal combustion (power plants), petrolium refining, and other industrial emissions; burning fossil fuels, natural sources.	21 (50%)	26 (63%)***	-
arsenic	As	Burning fossil fuels, mining, smelting, waste incineration, pesticides, pressure treated wood, and natural sources. Typical air concentrations in urban areas are above the EPA guideline as they were in this study population.	1 (2%)	2 (5%)	-
cadmium	Cd	Burning fossil fuels, mining, smelting, waste incineration, fertilizer, cigarette smoke, and natural sources.	1 (2%)	0	-
chlorine	Cl	Manufacturing (paper bleaching, chlorinated solvents, PVC resins), waste-water treatment, and marine sources.	39 (93%)	35 (83%)	-

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
chromium	Cr	Burning fossil fuels, metal processing, waste incineration, and natural sources.	1 (2%)	0	-
lead	Pb	Burning fossil fuels, manufacturing, mining, smelting, waste-incineration, cigarette smoke, older paints, burning lead-wick candles, and natural sources.	4 (10%)	4 (10%)	-
nickel	Ni	Automobile exhaust, petroleum refining, power plants, waste incineration, cement manufacturing, electroplating, cigarette smoke, and natural sources.	20 (48%)	24 (57%)	-
sulfur	S	Petroleum refining, coal combustion (power plants), smelting, burning fossil fuels, fertilizer, and natural sources.	41 (98%)	42 (100%)	-
vanadium	Va	Petroleum refining and other industrial emissions, burning fossil fuels, fertilizer, and natural sources.	30 (71%)	32 (76%)	-
zinc	Zn	Burning fossil fuels, smelting, fertilizer, wood preservatives, paint, road dust, and natural sources.	13 (31%)	14 (33%)	-
Phthalates			**50 Homes Tested**	**43 Homes Tested**	**49 Homes Tested**
benzyl butyl phthalate	BBP	Plastic softener and ingredient in polyvinyl chloride (PVC)-based flooring products, adhesives, and other plastics.	13 (26%)	0	48 (98%)
di-n-butyl phthalate	DBP	Plastic softener used in coatings (food and beverage cans, carpets), ingredient in ink, resins and cosmetics (nail polish, perfume, cologne); textile lubricant; carpet backing, paper coatings, adhesives; former insecticide.	50 (100%)	5 (12%)	45 (92%)
dicyclohexyl phthalate	DCP	Plastic softener (synthetic resins); paper finisher; ingredient in water resistant ink.	0	2 (5%)	8 (16%)
bis(2-ethylhexyl) adipate	DEHA	Plastic softener (meat-wrapping, and other plastic food wraps); ingredient in cosmetics (eye shadow, perfumes, cologne, foundations, blush, nail-polish remover, moisturizers, and self tanning products).	50 (100%)	36 (84%)	46 (94%)
bis(2-ethylhexyl) phthalate	DEHP	Plastic softener (shower curtains, rain coats, baby pants, children's toys, floor tiles, household furnishings, food packaging, rubber); ingredient in inks, insect repellant, cosmetics, rubbing alcohol, liquid soap, detergents, and lacquers; paper manufacturing; electric capacitors.	50 (100%)	14 (33%)	49 (100%)

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
diethyl phthalate	DEP	Ingredient in varnishes and cosmetics (bath products, perfume, cologne, hair sprays, wave sets, nail polish and remover, detergents, aftershave lotions, skin care products); plastic softener (tooth brushes, children's toys, tools, food packaging); insect repellent; dye carrier; camphor substitute.	45 (90%)	2 (5%)	35 (71%)
di-n-hexyl phthalate	DHP	Plastic softener (cellulose and vinyl plastics).	1 (2%)	2 (5%)	47 (96%)
diisobutyl phthalate	DIBP	Plastic softener.	50 (100%)	37 (86%)	48 (98%)
di-n-octyl phthalate	DOP	Plastic softener (resins and rubber); ingredient in dyes, film, wire, cables, adhesives.	1 (2%)	0	49 (100%)
di-n-pentyl phthalate	DPeP	Plastic softener (nitrocellulose and resin laquers); ingredient in glue and rubber cements.	1 (2%)	0	6 (12%)
di-n-propyl phthalate	DPP	Plastic softener; laboratory use; drug/therapeutic use.	0	0	1 (2%)
Parabens			**31 Homes Tested**	**29 Homes Tested**	**No Homes Tested**
butyl paraben	BuPa	Preservative (food and antiseptic creams); antifungal agent.	1 (3%)	0	-
methyl paraben	MePa	Preservative (baked goods, beverages, creams, pastes, jams, jellies, syrups, and cosmetics).	9 (29%)	0	-
Brominated Flame Retardants			**50 Homes Tested**	**43 Homes Tested**	**49 Homes Tested**
PBDE 47	PBDE47	Flame retardant used in polyurethane foam for furniture, upholstery, insulation panels, wood imitations, carpet padding, circuit boards, coatings for electrical equipment, military applications, and construction panels.	7 (14%)	0	49 (100%)
PBDE 99	PBDE99	See PBDE 47.	-	-	49 (100%)
PBDE 100	PBDE100	See PBDE 47.	-	-	46 (94%)
tris(2,3-dibromopropyl) phosphate	TrisBP	Former flame retardant used in children's clothing, polyurethane foam for furniture, industrial uniforms, drapes, coatings for electronics, christmas decorations, and polyester thread. Banned in 1977 from use in children's clothing and fabrics and not currently produced in the US.	-	-	4 (8%)

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
Polychlorinated Biphenyls (PCBs)			**50 Homes Tested**	**43 Homes Tested**	**49 Homes Tested**
PCB 52	PCB52	Former open uses (flame retardants, inks, paints, wood floor finishers, plasticizers, adhesives, wax extenders, dedusting agents, pesticide extenders, lubricants, cutting oils, and carbonless reproducing paper; former closed uses (hydraulic and heat transfer fluids, capacitors, transformers, vacuum pumps, gas-transmission turbines). Open uses were banned in 1977 and closed uses were banned in 1984.	16 (32%)	0	17 (35%)
PCB 105	PCB105	See PCB 52.	6 (12%)	0	16 (33%)
PCB 153	PCB153	See PCB 52.	2 (4%)	0	27 (55%)
Polycyclic Aromatic Hydrocarbons (PAHs)			**50 Homes Tested**	**43 Homes Tested**	**49 Homes Tested**
phenanthrene	Phenan	Automobile exhaust, petroleum refining, cigarette smoke, incense smoke, grilling food; burning wood and fossil fuels.	50 (100%)	40 (91%)	48 (98%)
1-methyl phenanthrene	1MPhenan	See phenanthrene.	50 (100%)	27 (63%)	47 (96%)
2-methyl phenanthrene	2MPhenan	See phenanthrene.	50 (100%)	35 (81%)	48 (98%)
3-methyl phenanthrene	3MPhenan	See phenanthrene.	50 (100%)	34 (79%)	47 (96%)
9-methyl phenanthrene	9MPhenan	See phenanthrene.	50 (100%)	24 (56%)	47 (96%)
3,6-dimethyl phenanthrene	DMPhenan	See phenanthrene.	3 (6%)	0	1 (2%)
dibenzothiophene	DBTPhe	Cosmetics, pharmaceuticals; automobile exhaust; burning fossil fuels.	31 (62%)	21 (49%)	12 (24%)
2-methyl-dibenzothiophene	2MDBTPhe	See dibenzothiophene.	35 (70%)	0	24 (49%)
4,6-dimethyl dibenzothiophene	DMDBTPhe	See dibenzothiophene.	18 (36%)	0	22 (45%)
anthracene	Anth	Automobile exhaust, cigarette smoke, incense smoke, home heating, grilling food, paving, waste incineration, burning fossil fuels.	21 (42%)	15 (35%)	17 (35%)
benz(a)anthracene	BaA	Automobile exhaust, cigarette smoke, grilling food, home heating, burning fossil fuels, incense smoke.	1 (2%)	0	42 (86%)
dibenz(a,h)anthracene	DBahA	See anthracene.	-	-	19 (39%)
pyrene	Pyr	Automobile exhaust, cigarette smoke, incense smoke, home heating; ingredient in dyes and optical brighteners.	50 (100%)	33 (77%)	49 (100%)

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
benzo(a)pyrene	BaP	Automobile exhaust, petroleum refining, cigarette smoke, grilling food, incense smoke, burning fossil fuels.	1 (2%)	0	44 (90%)
dibenz(a,e)pyrene	DBaePyr	See pyrene.	-	-	1 (2%)
indeno(1,2,3-cd)pyrene	IcdPyr	Cigarette smoke, home heating, burning fossil fuels, paving.	1 (2%)	0	40 (82%)
fluoranthene	FluAn	Automobile exhaust, petroleum refining, cigarette smoke, grilling food, home heating, incense smoke, waste incineration.	50 (100%)	35 (81%)	49 (100%)
benzo(b)&(j)fluoranthene	BbjFluAn	See fluoranthene.	1 (2%)	0	48 (98%)
benzo(k)fluoranthene	BkFluAn	See fluoranthene.	13 (26%)	0	45 (92%)
acenaphthene	AcNThe	Automobile exhaust, petroleum refining, cigarette smoke, incense smoke, burning fossil fuels, paving, waste incineration.	50 (100%)	43 (100%)	11 (22%)
acenaphthylene	AcNThy	Petroleum refining, burning fossil fuels, waste-incineration.	2 (4%)	15 (35%)	-
chrysene/Iso-chrysene	Chrys	Automobile exhaust, cigarette smoke, home heating, grilling food, incense smoke, fossil fueld combustion, waste-incineration.	1 (2%)	0	47 (96%)
fluorene	Flu	Automobile exhaust, petroleum refining, cigarette smoke, incense smoke; burning biomass and fossil fuels; roofing and paving; waste-incineration.	50 (100%)	41 (95%)	37 (76%)
Phenols			**31 Homes Tested**	**29 Homes Tested**	**No Homes Tested**
2,4-dichlorophenol	24DCPh	Ingredient in the herbicide 2,4-D, dyes, moth balls, antiseptics and seed disinfectants.	3 (10%)	2 (7%)	-
2,4-dihydroxybenzophenone	24dhbzon	Sunscreen agent; and ultraviolet absorber in polymers.	0	1 (3%)	-
2-sec-butylphenol	2sBPh	Ingredient in resins, plasticizers, surface-active agents, insecticides, acaricides, and herbicides.	1 (3%)	0	-
4,4'-methylenediphenol	44MDPh	No information available.	2 (6%)	0	-
4-sec-butylphenol	4sBPh	See 2-sec-Butylphenol.	1 (3%)	1 (3%)	-
4-tert-butylphenol	4tBPh	Ingredient in germicides.	31 (100%)	16 (55%)	-
bisphenol A	BPA	Used in production of polyester, epoxy, phenoxy, and polysulfone resins, polycarbonate, and hydroquinone; fungicide; ingredient in flame-retardants and rubber chemicals.	5 (16%)	4 (14%)	-
4-Nitrophenol	4NPh	Industrial manufacturing and processing (drugs, fungicides, dyes), gasoline and diesel exhaust, breakdown product of the insecticide parathion.	5 (16%)	4 (14%)	-

Sources of chemicals and amount detected in the CA Household Exposure Study

Chemical	Abbreviation	What is the source? How is it used?	In how many homes did we find it?		
			Number of Detects (%)		
			Indoor Air	Outdoor Air	Indoor Dust
Alkylphenols (APEOs)			31 Homes Tested	29 Homes Tested	No Homes Tested
4-nonylphenol	NP	Surface-active agent (detergents, paints, emulsifiers, pesticides, and herbicides); ingredient in plastics.	31 (100%)	4 (14%)	-
nonylphenol monoethoxylate	NP1EO	See 4-nonylphenol.	30 (97%)	0	-
nonylphenol diethoxylate	NP2EO	See 4-nonylphenol.	9 (29%)	1 (3%)	-
4-octylphenol	4OP	Ingredient in resins, fungicides, bactericides, dyes, adhesives, and rubber chemicals; surfactant; plastic softener; antioxidant; fuel oil stabilizer.	1 (3%)	0	-

Notes:

* 31 Homes tested

** 29 Homes tested

*** 41 Homes tested