Participant Code: 6305

Thank you for participating in *A Week in Chemicals*!

Synthetic chemicals surround us. They are used to make 96 percent of all products sold in America. Approximately 80,000 chemicals are available for use in the US market today. The Centers for Disease Control (CDC) routinely detects over three hundred chemicals in the blood or urine of virtually every American tested. And yet, we know very little about how and where we may come into contact with chemicals in our everyday lives. To better protect our health from hazardous chemicals we need to better understand our environment. EDF conducted this project to learn about the potential of MyExposome wristband monitors to illuminate the presence of chemicals in our everyday environment. To make the invisible, visible!

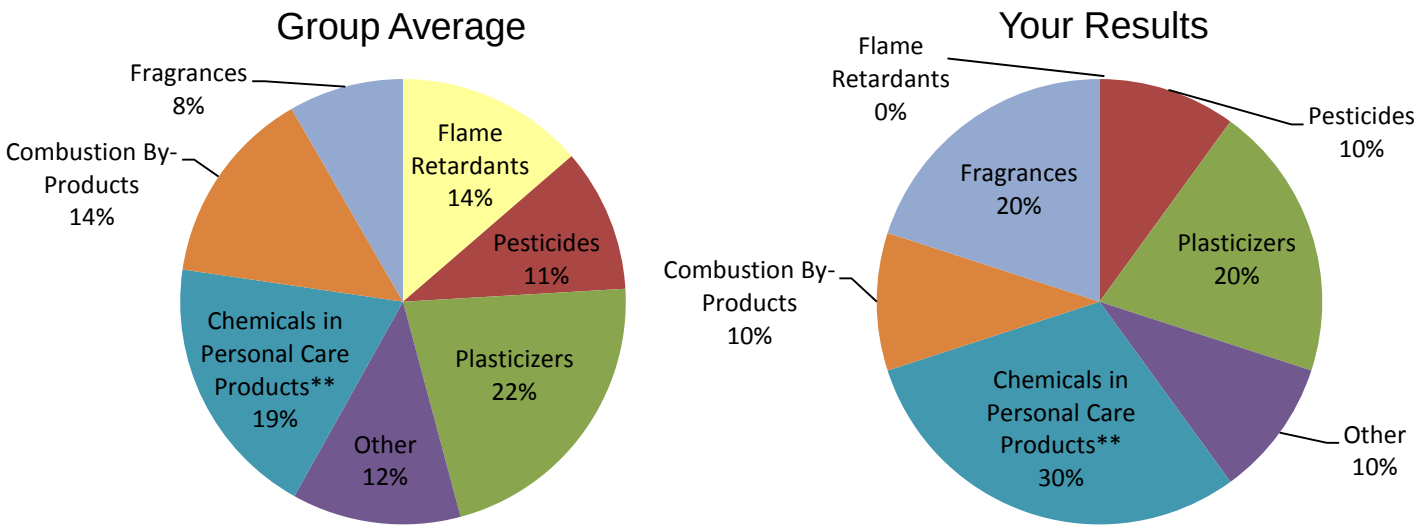
Summary Results

- You were one of **28** participants.
- The wristbands were analyzed for a total of **1,418** chemicals.
- A total of **57** chemicals were detected in all the wristbands.
- A range of **10-27** chemicals were detected per wristband.
- **10** chemicals were detected in your wristband.
- **86%** of the wristbands detected at least one flame retardant.
- **93%** of the wristbands detected at least one pesticide.
- **28%** of the chemicals detected are toxic to and persistent in the environment.
- Every wristband detected **galaxolide**, a common fragrance used in cleaning products and beauty products.

Chemicals Detected in Your Wristband

Benzophenone	Butylated hydroxyanisole	Galaxolide	Tonalide
Benzyl benzoate	Diethyl phthalate	Phenanthrene	
Bis(2-ethylhexyl)phthalate	Eugenol	Promecarb artifact	

Where might these chemicals be found in my environment?*



*Chemicals are categorized by their primary function or use.

** "Chemicals in Personal Care Products" includes preservatives, antimicrobials, UV filters and fragrance enhancers. Plasticizers and fragrances are represented in separate categories; however, they may also be found in personal care products.

Participant Code: 6305

Should I be concerned?

Below we've provided information on the types of hazards that are associated with the chemicals detected in this project. It is important to remember that the wristbands only detected whether or not the chemical was present in your environment. We do not know whether or not the chemical entered your body. Therefore, no conclusions can be made about the risks any of these chemicals may present to your health.

The most common hazards associated with the 57 chemicals detected in this project are **cancer** (35%), **developmental** and/or **reproductive effects** (28%), **endocrine disruption** (60%), **respiratory effects** (28%) and **skin sensitization** and/or **skin irritation** (42%).

Toxic chemicals, called "PBTs", present a concern because they persist for generations and bioaccumulate in the body and the food chain. A total of **16** PBT chemicals were detected in the project. **2** PBTs were detected in your environment.

The chart below shows the different hazards of all the chemicals detected in the project as well as those detected in your wristband. Please note that many of the chemicals have more than one hazardous characteristic. For additional information on all the chemicals, please see the appendix.

Hazards	Total in project	Your wristband	Chemicals in your wristband
Cancer	20	4	Benzophenone, Bis(2-ethylhexyl)phthalate, Butylated hydroxyanisole, Phenanthrene
Developmental/ Reproductive effects	16	4	Bis(2-ethylhexyl)phthalate, Butylated hydroxyanisole, Diethyl phthalate, Galaxolide
Endocrine disruption	34	7	Benzophenone, Bis(2-ethylhexyl)phthalate, Butylated hydroxyanisole, Diethyl phthalate, Galaxolide, Phenanthrene, Tonalide
Respiratory effects	16	3	Bis(2-ethylhexyl)phthalate, Diethyl phthalate, Eugenol
Skin sensitization/ skin irritation	24	5	Bis(2-ethylhexyl)phthalate, Butylated hydroxyanisole, Diethyl phthalate, Eugenol, Phenanthrene
Persistent, bioaccumulative and toxic ("PBT")	16	2	Galaxolide, Phenanthrene

The solution?

The results may raise questions for you about how you came in contact with these chemicals and how you can avoid them in the future. Unfortunately, even people who took steps to lower their exposures could not completely avoid contact with hazardous chemicals.

What then can we do? This project demonstrates that we as individuals cannot simply shop our way out of the problem — we need a more comprehensive, national solution. Reducing the presence of hazardous chemicals demands a three-pronged strategy:

1. Congress must reform our nation's outdated chemical safety law to better protect public health.
2. Our country should accelerate science on chemicals and health through investments in cutting-edge technologies and expanded research.
3. Companies need to take action to remove hazardous chemicals from products and the supply chain and innovate in safer chemicals.

To be successful, none of these actions can occur in a vacuum. We need influential voices weighing in and pushing for all of these changes. That means major media outlets covering the problem in an in-depth and sophisticated manner. It also means more people weighing in directly with members of Congress on the need for strong chemical laws—from every day citizens to thought leaders. And as we explore the major causes of disease, we need more researchers and resources to examine the impacts of chemical exposures on our health — and to deploy new technologies like the wristbands.

EDF is working across all three of these solutions for safer chemicals and healthier people. We plan to use the results of this pilot project to leverage action across these initiatives. Here are our next steps.

Communicating about the problem
We plan to use the results to raise broad public awareness about the presence of hazardous chemicals in our everyday lives through media outlets from blogs to local and national stories. We are also hoping participants might be interested in telling a story about their results. Some stories could highlight the need for legislative reforms while others could focus on the need for greater research and investigation into understanding our everyday chemical exposures.

We are currently conducting a quantitative analysis of the flame retardants present in the wristbands of the vast majority of participants. These results can provide more focused stories about these hazardous and problematic chemicals to illustrate the flaws in our regulatory system and gaps in our scientific knowledge. This next analytical step will also further illustrate potential uses and limitations of these wristbands for future research.

Informing research priorities
We plan to convene experts and interested participants to discuss how these wristbands can be integrated into existing and new research to significantly expand our understanding of chemical exposures and identify near-term research objectives.

We'd love to continue to work with you on these next steps and to hear your thoughts and feedback on the project, the technology and our effort.

Appendix

The Appendix provides more detailed information on the chemicals detected in this project, their uses and potential hazards, as well as additional information about the wristband technology.

I. Definitions

Hazard – The hazard of a chemical refers to its intrinsic ability to cause harm or induce a toxic effect, such as those listed below in "Chemical Hazard Types." Risk is a function of both *hazard* and *exposure*, the amount of the chemical substance that enters a person's body. Assuming a constant exposure, chemicals will differ in the type and magnitude of toxic effect(s) that they may induce.

Persistent bioaccumlative toxic chemicals ("PBTs") – Chemicals that do not break down readily from natural processes, accumulate in organisms concentrating as they move up the food chain, and are harmful in small quantities.

Chemical Hazard Types*

Cancer – Can cause or increase the risk of cancer.

Developmental – Can cause harm to the developing child including birth defects, low birth weight and biological or behavioral problems that appear as the child grows.

Reproductive – Can disrupt the male or female reproductive systems, changing sexual development, behavior or functions, decreasing fertility, or resulting in loss of the fetus during pregnancy.

Endocrine disruption – Can interfere with hormone communication and production, which controls metabolism, development, growth, reproduction and behavior.

Respiratory – Can result in high sensitivity such that small quantities trigger asthma, rhinitis or other allergic reactions in the respiratory system.

Skin Sensitization – Can trigger allergic reactions on the skin.

Functions & Uses

Combustion by-products – Chemicals formed from the incomplete burning of coal, oil, gas, garbage, or other organic substances. Most chemicals included in this category are polycyclic aromatic hydrocarbons (PAHs).

Chemicals in Personal Care Products – Chemicals added to personal care products (e.g., lotions, soaps, and cosmetics), such as preservatives and antimicrobials. Plasticizers and fragrances (see below) are excluded from this category.

Flame retardants – Chemicals added to a variety of materials, including textiles, electronics, plastics, and foam to reduce flammability.

Fragrances – Chemicals with an inherent odor. These chemicals are often added to personal care products, cleaning products, food products, and more.

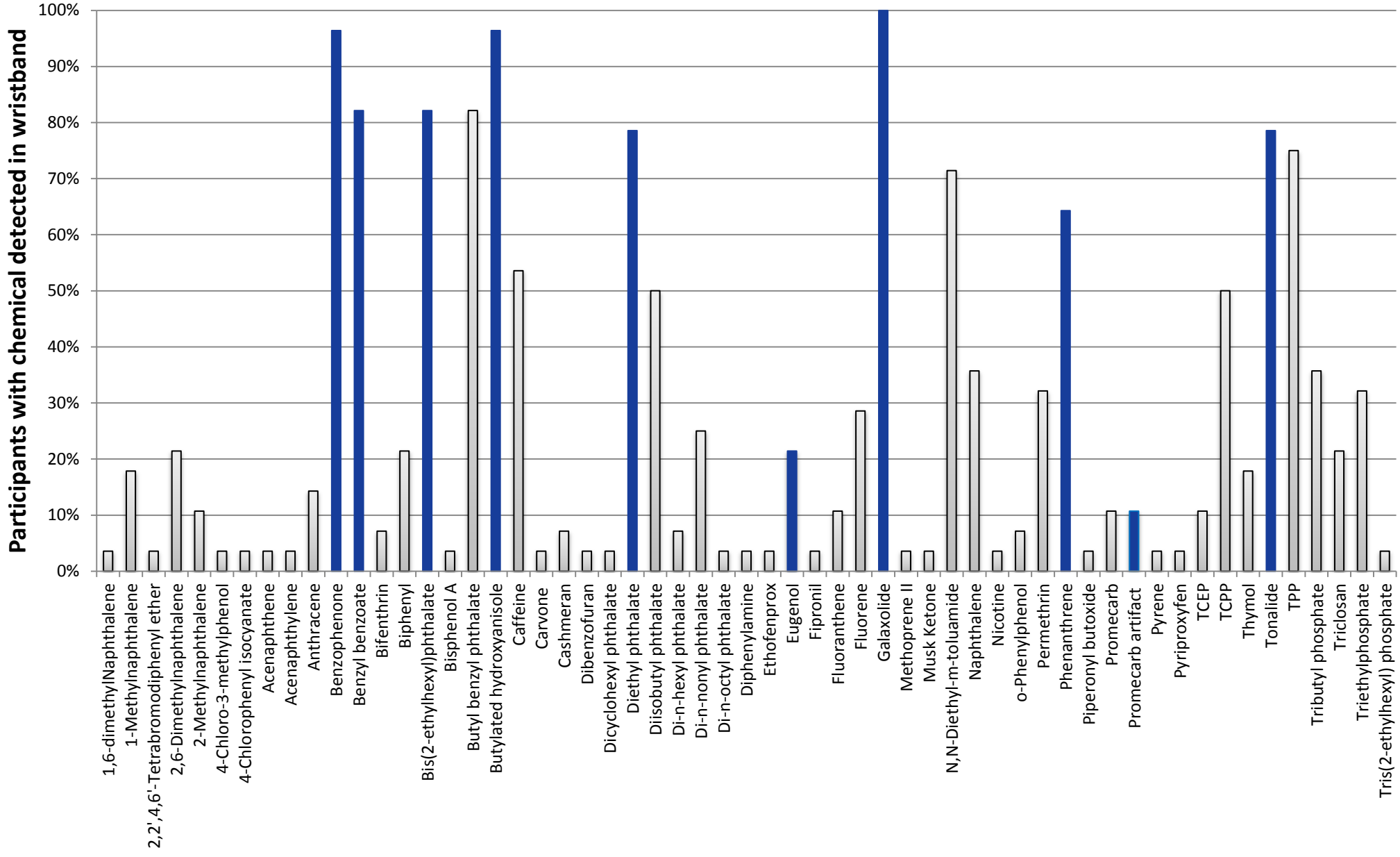
Pesticides – Chemicals designed to kill, repel, or mitigate any pest (insects, rodents, weeds, fungi, and microorganisms). This category includes pesticides registered with the U.S. EPA, but excludes antimicrobials designed for use in personal care products.

Plasticizers – Chemicals used to provide plasticity and flexibility to plastics, such as polyvinylchloride (PVC). This category includes phthalate chemicals, which are added a variety products including construction materials, personal care products, toys, food packaging, medical devices, and more.

Other – The "Other" category includes food additives, tobacco derivatives, chemical intermediates, and chemicals that cannot be classified due to many overlapping functions.

* Chemical hazard type definitions are based on the Pharos database, available here: https://www.pharosproject.net/

II. Chemicals Detected in the Project



Chemicals detected in your wristband are highlight in blue.

III. Full Chemical List

Below you'll find detailed information on hazard, function, and uses of the chemicals detected in your wristband and other chemicals detected in this project. The primary function used in the pie charts is the first listed under "Primary Function(s)" for each chemical. Chemicals classified as "other" in the pie charts are listed as such.

Chemicals in your wristband

Benzophenone (CASRN: 119-61-9)
Overall Hazard*: High
Specific Hazards: high hazard for cancer; medium hazard for endocrine disruption
Primary Function(s): UV filter and fragrance enhancer in personal care products
Used or Found in**: personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; paper products; ink, pigments, and dyes; toys and children's products; electronics; cigarette chemicals; pharmacological products
Government Resource: http://toxnet.nlm.nih.gov/ (search term: benzophenone)

Benzyl benzoate (CASRN: 120-51-4)
Overall Hazard: Potential†
Specific Hazards: No known human hazards
Primary Function(s): Fragrance fixative and preservative in personal care products, food additive, antiparasitic (treats scabies), pesticide, solvent, plasticizer
Used or Found in: personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; manufacture/maintenance of vehicles; toys and children's products; cigarette chemicals; pharmacological products
Government Resource: http://toxnet.nlm.nih.gov/ (search term: benzyl benzoate)

Bis(2-ethylhexyl)phthalate (CASRN: 117-81-7)
Overall Hazard: High
Specific Hazards: high hazard for cancer, developmental effects, reproductive effects; medium hazard for endocrine disruption, respiratory effects, organ toxicity, skin irritation; potential hazard for neurotoxicity
Primary Function(s): Plasticizer
Used or Found in: air; personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; ink, pigments, and dyes; arts, crafts, hobby materials; toys and children's products; electronics; pharmacological products
Government Resource: http://www.atsdr.cdc.gov/phs/phs.asp?id=376&tid=65

Butyl benzyl phthalate (CASRN: 85-68-7)
Overall Hazard: High
Specific Hazards: high hazard for developmental effects, reproductive effects; medium hazard for cancer, endocrine disruption, respiratory effects, skin irritation
Primary Function(s): Plasticizer
Used or Found in: air; personal care products; pesticides (inert ingredient); food packaging and additives; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; paper products; ink, pigments, and dyes; arts, crafts, hobby materials; toys and children's products; electronics
Government Resource: http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates.html

Butylated hydroxyanisole (CASRN: 25013-16-5)
Overall Hazard: High
Specific Hazards: high hazard for cancer; medium hazard for developmental effects, reproductive effects, endocrine disruption, skin sensitization
Primary Function(s): Preservative in personal care products and food (antioxidant)
Used or Found in: water; personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; toys and children's products; pharmacological products
Government Resource: https://ntp.niehs.nih.gov/ntp/roc/content/profiles/butylatedhydroxyanisole.pdf

Diethyl phthalate (CASRN: 84-66-2)
Overall Hazard: High
Specific Hazards: high hazard for reproductive effects; medium hazard for endocrine disruption, respiratory effects, skin sensitization, skin irritation
Primary Function(s): Plasticizer
Used or Found in: personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; manufacture/maintenance of vehicles; ink, pigments, and dyes; toys and children's products; pharmacological products
Government Resource: http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=112

Eugenol (CASRN: 97-53-0)
Overall Hazard: Medium
Specific Hazards: medium hazard for respiratory effects, skin sensitization, skin irritation
Primary Function(s): Fragrance, food additive, antiseptic, analgesic ("Other")
Used or Found in: personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; toys and children's products; pharmacological products; petroleum products/fuels
Government Resource: Not available

Galaxolide (CASRN: 1222-05-5)
Overall Hazard: High
Specific Hazards: PBT; high hazard for developmental effects‡; medium hazard for endocrine disruption
Primary Function(s): Fragrance
Used or Found in: personal care products; pesticides (inert ingredient); cleaning products; building materials; manufacture/maintenance of vehicles
Government Resource: http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryID=245534

Phenanthrene (CASRN: 85-01-8)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer; medium hazard for endocrine disruption, skin sensitization
Primary Function(s): Combustion by-product
Used or Found in: air; pesticides (inert ingredient); ink, pigments, and dyes; pharmacological products; petroleum products/fuels
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/phenanth.pdf

Promecarb artifact [5-isopropyl-3-methylphenol] (CASRN: 485106)
Overall Hazard: Medium†
Specific Hazards: No known human hazards
Primary Function(s): Pesticide
Used or Found in: pesticides
Government Resource: Not available

Tonalide (CASRN: 1506-02-1)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Fragrance
Used or Found in: personal care products; pesticides (inert ingredient); cleaning products; manufacture/maintenance of vehicles; petroleum products/fuels
Government Resource: http://toxnet.nlm.nih.gov/ (search term: tonalide)

Other chemicals detected in the dry run

1,6-dimethylnaphthalene (CASRN: 575-43-9)
Overall Hazard: Unknown
Specific Hazards: No known human hazards
Primary Function(s): Combustion by-product
Used or Found in: air
Government Resource: http://toxnet.nlm.nih.gov/ (search term: 1,6-dimethylnaphthalene)

1-Methylnaphthalene (CASRN: 90-12-0)
Overall Hazard: Medium †
Specific Hazards: No known human hazards
Primary Function(s): Combustion by-product, chemical intermediate
Used or Found in: air; incense; pesticides (inert ingredient); food packaging and additives; ink, pigments, and dyes; petroleum products/fuels
Government Resource: http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=43

2,2',4,6'-Tetrabromodiphenyl ether (CASRN: 189084-57-9)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Flame retardant
Used or Found in: building materials; fabric, furniture, and upholstery
Government Resource: http://www.toxtown.nlm.nih.gov/text_version/chemicals.php?id=79

2,6-Dimethylnaphthalene (CASRN: 581-42-0)
Overall Hazard: Unknown
Specific Hazards: No known human hazards
Primary Function(s): Combustion by-product
Used or Found in: air; incense; food packaging and additives
Government Resource: Not available

2-Methylnaphthalene (CASRN: 91-57-6)
Overall Hazard: Medium†
Specific Hazards: No known human hazards
Primary Function(s): Combustion by-product, chemical intermediate
Used or Found in: air; incense; pesticides (inert ingredient); food packaging and additives; ink, pigments, and dyes; petroleum products/fuels
Government Resource: http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=43

4-Chloro-3-methylphenol (CASRN: 59-50-7)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption, skin sensitization
Primary Function(s): Preservative in personal care products (antimicrobial), antiseptic, pesticide (industrial preservative) ("Other")
Used or Found in: personal care products; pesticides; food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; paper products; ink, pigments, and dyes; pharmacological products
Government Resource: Not available

4-Chlorophenyl isocyanate (CASRN: 104-12-1)
Overall Hazard: Medium
Specific Hazards: medium hazard for cancer, respiratory effects, organ toxicity, skin irritation
Primary Function(s): Chemical intermediate in manufacture of pesticides and pharmaceuticals (“Other”)
Used or Found in: pesticides (inert ingredient); toys and children's products; pharmacological products
Government Resource: http://toxnet.nlm.nih.gov/ (search term: 4-Chlorophenyl isocyanate)

Acenaphthene (CASRN: 83-32-9)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer
Primary Function(s): Combustion by-product
Used or Found in: air; pesticides (inert ingredient)
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/pahs.pdf

Acenaphthylene (CASRN: 208-96-8)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer
Primary Function(s): Combustion by-product
Used or Found in: air; incense
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/pahs.pdf

Anthracene (CASRN: 120-12-7)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer; medium hazard for endocrine disruption, respiratory effects, skin sensitization, skin irritation
Primary Function(s): Combustion by-product
Used or Found in: air; personal care products; building materials; manufacture/maintenance of vehicles
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/anthrace.pdf

Bifenthrin (CASRN: 82657-04-3)
Overall Hazard: High
Specific Hazards: PBT; medium hazard for cancer, endocrine disruption, respiratory effects, organ toxicity, skin irritation
Primary Function(s): Pesticide
Used or Found in: pesticides; building materials
Government Resource: http://npic.orst.edu/factsheets/biftech.pdf

Biphenyl (CASRN: 92-52-4)
Overall Hazard: Medium
Specific Hazards: medium hazard for cancer, endocrine disruption, respiratory effects, organ toxicity, skin irritation
Primary Function(s): Chemical intermediate (“Other”)
Used or Found in: air; personal care products; pesticides (inert ingredient); food packaging and additives; building materials; paper products; petroleum products/fuels
Government Resource: http://www.epa.gov/ttnatw01/hlthef/biphenyl.html

Bisphenol A (CASRN: 80-05-7)
Overall Hazard: High
Specific Hazards: high hazard for developmental effects, reproductive effects; medium hazard for endocrine disruption, respiratory effects, organ toxicity, skin sensitization, skin irritation
Primary Function(s): Plasticizer
Used or Found in: food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; paper products; ink, pigments, and dyes; arts, crafts, hobby materials; toys and children's products; electronics; petroleum products/fuels
Government Resource: https://www.niehs.nih.gov/health/assets/docs_a_e/bisphenol_a_bpa_508.pdf

Caffeine (CASRN: 58-08-2)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Food additive (“Other”)
Used or Found in: personal care products; pesticides (inert ingredient); food packaging and additives; cigarette chemicals; pharmacological products
Government Resource: http://www.fda.gov/downloads/UCM200805.pdf

Carvone (CASRN: 99-49-0)
Overall Hazard: Potential †
Specific Hazards: No known human hazards
Primary Function(s): Preservative (antimicrobial) in personal care products, food additive, fragrance, pesticide (insect repellent) (“Other”)
Used or Found in: personal care products; pesticides; food packaging and additives; cleaning products; cigarette chemicals
Government Resource: http://toxnet.nlm.nih.gov/ (search term: carvone)

Cashmeran (CASRN: 33704-61-9)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Fragrance
Used or Found in: personal care products; cleaning products
Government Resource: Not available

Dibenzofuran (CASRN: 132-64-9)
Overall Hazard: High
Specific Hazards: PBT
Primary Function(s): Combustion by-product
Used or Found in: air; incense
Government Resource: http://www.epa.gov/ttnatw01/hlthef/di-furan.html

Dicyclohexyl phthalate (CASRN: 84-61-7)
Overall Hazard: High
Specific Hazards: high hazard for reproductive effects; medium hazard for endocrine disruption, respiratory effects
Primary Function(s): Plasticizer
Used or Found in: food packaging and additives; building materials; paper products; ink, pigments, and dyes
Government Resource: http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html

Diisobutyl phthalate (CASRN: 84-69-5)
Overall Hazard: High
Specific Hazards: high hazard for developmental effects, reproductive effects; medium hazard for endocrine disruption, respiratory effects
Primary Function(s): Plasticizer
Used or Found in: personal care products; food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; paper products; arts, crafts, hobby materials; toys and children's products
Government Resource: http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=24

Di-n-hexyl phthalate (CASRN: 84-75-3)
Overall Hazard: High
Specific Hazards: high hazard for reproductive effects; medium hazard for developmental effects, endocrine disruption, respiratory effects
Primary Function(s): Plasticizer
Used or Found in: pesticides (inert ingredient); food packaging and additives; building materials; toys and children's products
Government Resource: http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=24

Diphenylamine (CASRN: 122-39-4)
Overall Hazard: Medium
Specific Hazards: medium hazard for cancer, developmental effects, reproductive effects, organ toxicity, skin sensitization
Primary Function(s): Pesticide (antioxidant)
Used or Found in: personal care products; pesticides; food packaging and additives; building materials; manufacture/maintenance of vehicles; ink, pigments, and dyes; electronics; petroleum products/fuels
Government Resource: http://www.epa.gov/opp00001/reregistration/REDs/factsheets/2210fact.pdf

Ethofenprox (CASRN: 80844-07-1)
Overall Hazard: High
Specific Hazards: high hazard for developmental effects; medium hazard for endocrine disruption
Primary Function(s): Pesticide (used to repell bed bugs)
Used or Found in: pesticides
Government Resource: Not available

Fipronil (CASRN: 120068-37-3)
Overall Hazard: High
Specific Hazards: PBT; medium hazard for reproductive effects, endocrine disruption, neurotoxicity, organ toxicity
Primary Function(s): Pesticide
Used or Found in: pesticides; food packaging and additives
Government Resource: http://npic.orst.edu/factsheets/fipronil.html

Fluoranthene (CASRN: 206-44-0)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer; medium hazard for endocrine disruption
Primary Function(s): Combustion by-product
Used or Found in: air; building materials; pharmacological products
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/pahs.pdf

Fluorene (CASRN: 86-73-7)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer; potential hazard for endocrine disruption
Primary Function(s): Combustion by-product
Used or Found in: air; pesticides (inert ingredient)
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/flourene.pdf

Methoprene II (CASRN: 999045-03-3)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Pesticide
Used or Found in: pesticides
Government Resource: http://npic.orst.edu/factsheets/methogen.html#whatis

Musk Ketone (CASRN: 81-14-1)
Overall Hazard: High
Specific Hazards: PBT; medium hazard for cancer, endocrine disruption
Primary Function(s): Fragrance
Used or Found in: personal care products; food packaging and additives; cleaning products; pharmacological products
Government Resource: http://toxnet.nlm.nih.gov/cgi-bin/sis/search/a?dbs+hsdb:@term+@DOCNO+7694

N,N-Diethyl-m-toluamide (DEET) (CASRN: 134-62-3)
Overall Hazard: Potential
Specific Hazards: medium hazard for skin irritation
Primary Function(s): Pesticide (insect repellent)
Used or Found in: personal care products; pesticides; food packaging and additives; cleaning products
Government Resource: http://www2.epa.gov/insect-repellents/deet

Nicotine (CASRN: 54-11-5)
Overall Hazard: High
Specific Hazards: high hazard for developmental effects; medium hazard for reproductive effects, endocrine disruption; potential hazard for neurotoxicity
Primary Function(s): Tobacco derivative “Other”
Used or Found in: cigarette chemicals; pharmacological products; personal care products
Government Resource:
http://www.fda.gov/TobaccoProducts/default.htm?utm_campaign=Google2&utm_source=fdaSearch&utm_medium=website&utm_term=tobacco&utm_content=1

o-Phenylphenol (CASRN: 90-43-7)
Overall Hazard: High
Specific Hazards: high hazard for cancer; medium hazard for endocrine disruption, respiratory effects, organ toxicity, skin irritation
Primary Function(s): Pesticide
Used or Found in: personal care products; pesticides; food packaging and additives; cleaning products; building materials; paper products; toys and children's products
Government Resource: http://www.cdc.gov/biomonitoring/Orthophenylphenol_BiomonitoringSummary.html

Permethrin (CASRN: 52645-53-1)
Overall Hazard: High†
Specific Hazards: medium hazard for endocrine disruption, respiratory effects, organ toxicity, skin sensitization, skin irritation
Primary Function(s): Pesticide
Used or Found in: personal care products; pesticides; food packaging and additives; building materials; paper products; ink, pigments, and dyes; pharmacological products
Government Resource: http://www.epa.gov/oppsrrd1/reregistration/REDs/factsheets/permethrin_fs.htm

Piperonyl butoxide (CASRN: 51-03-6)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption, skin irritation
Primary Function(s): Pesticide (synergist)
Used or Found in: personal care products; pesticides (inert ingredient); food packaging and additives; cleaning products; pharmacological products
Government Resource: http://npic.orst.edu/factsheets/pbotech.pdf

Promecarb (CASRN: 2631-37-0)
Overall Hazard: Medium†
Specific Hazards: No known human hazards
Primary Function(s): Pesticide
Used or Found in: pesticides
Government Resource: Not available

Pyrene (CASRN: 129-00-0)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer; medium hazard for endocrine disruption
Primary Function(s): Combustion by-product
Used or Found in: air; personal care products; cleaning products; building materials; manufacture/maintenance of vehicles; ink, pigments, and dyes
Government Resource: http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/pyrene.pdf

Pyriproxyfen (CASRN: 95737-68-1)
Overall Hazard: Medium
Specific Hazards: medium hazard for endocrine disruption
Primary Function(s): Pesticide
Used or Found in: personal care products; pesticides
Government Resource: http://www.cdpr.ca.gov/docs/emon/pubs/fatememo/pyrprxfn.pdf

TCEP (CASRN: 115-96-8)
Overall Hazard: High
Specific Hazards: PBT; high hazard for cancer, reproductive effects; medium hazard for skin irritation
Primary Function(s): Flame retardant
Used or Found in: personal care products; food packaging and additives; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; toys and children's products
Government Resource: http://www.atsdr.cdc.gov/phs/phs.asp?id=1118&tid=239

TCPP (CASRN: 13674-84-5)
Overall Hazard: High
Specific Hazards: PBT
Primary Function(s): Flame retardant
Used or Found in: building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; electronics
Government Resource: http://www.atsdr.cdc.gov/phs/phs.asp?id=1118&tid=239

Thymol (CASRN: 89-83-8)
Overall Hazard: Medium
Specific Hazards: medium hazard for respiratory effects, skin irritation
Primary Function(s): Preservative (antimicrobial) in personal care products, food additive, fragrance, pesticide ("Other")
Used or Found in: personal care products; pesticides; food packaging and additives; cleaning products; building materials; cigarette chemicals; pharmacological products
Government Resource: http://toxnet.nlm.nih.gov/ (search term: thymol)

Tributyl phosphate (CASRN: 126-73-8)
Overall Hazard: Medium
Specific Hazards: medium hazard for cancer, developmental effects, skin irritation ; potential hazard for neurotoxicity
Primary Function(s): Flame retardant, solvent
Used or Found in: personal care products; food packaging and additives; cleaning products; building materials; fabric, furniture, and upholstery; manufacture/maintenance of vehicles; ink, pigments, and dyes; electronics
Government Resource: http://www.atsdr.cdc.gov/phs/phs.asp?id=1118&tid=239

Triclosan (CASRN: 3380-34-5)
Overall Hazard: High
Specific Hazards: PBT; medium hazard for endocrine disruption, skin irritation
Primary Function(s): Preservative (antimicrobial) in personal care products and other consumer products, pesticide
Used or Found in: personal care products; cleaning products; building materials; fabric, furniture, and upholstery; pharmacological products
Government Resource: http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm205999.htm

Triethylphosphate (CASRN: 78-40-0)
Overall Hazard: Potential†
Specific Hazards: No known human hazards
Primary Function(s): Flame retardant, plasticizer, chemical intermediate, solvent
Used or Found in: pesticides (inert ingredient); food packaging and additives; building materials; fabric, furniture, and upholstery; electronics
Government Resource: http://toxnet.nlm.nih.gov/ (search term: triethylphosphate)

Tris(2-ethylhexyl) phosphate (CASRN: 78-42-2)
Overall Hazard: Potential
Specific Hazards: medium hazard for skin irritation
Primary Function(s): Flame retardant, plasticizer, solvent
Used or Found in: pesticides (inert ingredient); food packaging and additives; cleaning products; building materials
Government Resource:
http://oehha.ca.gov/prop65/public_meetings/CIC101211/101211Tris2ethylhexylphosphate.pdf

*Chemical hazards based on the Pharos database, available here: https://www.pharosproject.net/

**Chemical uses data is based primarily on EPA's CPCat database, available here: http://actor.epa.gov/cpcat/faces/home.xhtml

† Overall hazard for these chemicals is based on either aquatic toxicity or fatality from ingestion of large quantities.

‡ Evidence for reproductive/developments effects for Galaxolide are based on preliminary studies. The majority of research demonstrates that Galaxolide exerts its toxic effects on the environment; there is limited data to indicate that this chemical is toxic to humans.

IV. Additional Information on the Technology

The personal environmental monitors used in this project are designed to detect organic chemical compounds in the environment. The monitors cannot detect metals (e.g., lead and mercury) or inorganic air pollutants (e.g., ozone and sulfur dioxide).

See here for the full list of chemicals the wristband were able to detect in your environment: http://www.myexposome.com/testedchems