



## Brominated Flame Retardants, At What Cost?



### What is your body burden?

PBDEs are one example of the over 85,000 industrial chemicals currently on the global market. We have toxicity information on less than ten percent of those chemicals. Our bodies have an average of 200 chemical residues, some from substances long banned. To find out more about chemical body burden (see the Environmental Working Group study at [www.ewg.org/reports/bodyburden/](http://www.ewg.org/reports/bodyburden/) and the California Body Burden Campaign at [www.calbbc.org](http://www.calbbc.org)

Now that you've cut back on mercury-laden tuna fish sandwiches, and checked your deodorant, shampoo, and body lotion for potentially carcinogenic phthalates and parabens, you thought you were safe, right? No such luck; it turns out that chemicals intended to keep your couch and television (and your toaster, coffeemaker, hairdryer, laptop, car, and airplane seat) from catching on fire, are turning up in fat and breast milk. These chemicals may disrupt thyroid hormone levels during pregnancy, with disastrous results on brain development.

As we got more nifty plastic appliances in our homes over the last quarter century, the use of chemical flame retardants has steadily increased. Flame retardants have unquestionably reduced the risk of death and property damage from fire, but at what cost?

A group of flame retardants, the polybrominated diphenyl ethers (PBDEs) have been used to slow fires in upholstered furniture and consumer electronics since the mid-1970s. PBDEs are a subclass of brominated flame retardants (BFRs), which make up about 25 percent of the world market in chemical flame-retardants. PBDEs have been detected in the environment since the 1980s, but concerns started to mount when Swedish researchers monitoring the levels of chemical pollutants in the country's breast milk saw levels of PBDEs in breast milk doubling every five years. As researchers worldwide started to analyze river sediments, food, bird eggs and seal blubber, their concerns grew: PBDEs were everywhere. Some of the scariest numbers come from our own backyard. A 2002 Bay Area

breast cancer study looked at PBDE levels in fat and reported the highest levels of PBDEs in the world, 10 to 40 times higher than those found in Europe. Later tests of breast milk around the country show similar results.

### Where are PBDEs coming from?

Like DDT, dioxins, and PCBs before them, PBDEs may enter the environment in small amounts when they're made, or when we



use and eventually throw away our couches and computers, but their impact is greater because they are drawn to the fat-rich places in humans and animals. The higher you go on the food chain, the higher the concentrations get: birds that eat fish concentrate the compounds in their eggs; animals that eat birds get an even bigger dose, and so on. PBDEs are turning up in Arctic polar bears

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## If You Change Your Own Oil—Be Aware!

As a do-it-yourselfer you may be unaware that it is illegal to throw oil filters in the garbage. Do-it-yourself oil changers in California currently purchase more than 20 million oil filters annually. Unfortunately, less than ten percent of used oil filters are recycled. A drained used oil filter can still contain up to 5 ounces of oil. If all filters discarded in California contained only 1 ounce of oil, it would mean 1.1 million gallons of oil going to California landfills each year. We can assume that it is more than this because it is impossible to completely drain oil filters of all their oil.

If you have your oil changed at an auto repair shop or quick lube, you will see a line on the bill for an “environmental fee” or “hazardous waste disposal fee.” These fees help to protect your health and the environment by paying for disposal of oil and filters and the inspection fees to County Environmental Health who insures that auto shops are managing oil and filters in accordance to California Environmental Regulations.

Used oil filters are picked up at recycling centers and auto repairs by a licensed hauler who takes them to a commercial filter-recycling center. The filters are shredded, the steel is separated out magneti-

cally, and the filter media, usually paper, is pressed to extract residual oil. Oil from the filters is drained and collected during every step of the filter recycling process and sent to a re-refinery where it is made back into motor oil. The recycled steel from the filters is made into rebar for building. It is important that we recycle these valuable resources of used filters and oil. So the next time you change your oil, or if you know someone else who does, remind him or her to finish the job right and bring their oil and filter to a used oil collection and recycle them free of charge. To find a collection center nearby go to **1-800-CLEANUP** or [www.earth911.org](http://www.earth911.org).



Recycle used oil filters.

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and North Sea seals, far from anywhere flame-retardants are made or used.

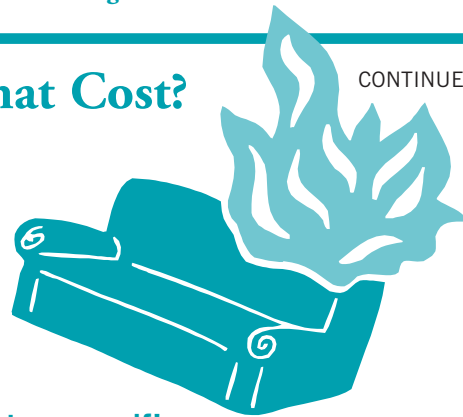
### What's the problem?

These compounds are everywhere and are accumulating in fat; they're not the first. Their levels are still below PCBs, which are hanging around even though we banned them 25 years ago. What's the problem? PBDEs are endocrine disruptors, wreaking havoc with the thyroid hormones in the third trimester of pregnancy, when brain connections are forming. Lab tests show PBDEs significantly impact exposed rats and mice, creating brain deficits that make it harder for them to learn and move normally.

Levels of PBDEs in human breast milk and birds that eat high on the food chain are now close to the levels that caused problems for the lab rats. We already know that long-term exposure to even low levels of PCBs can generate a several point drop in IQ in human children. Do PBDEs interact with PCBs, dioxins and other chemicals of similar structure? We simply don't know.

### What's happening?

Bans on some PBDEs are happening in Europe and across the United States, including in California. The bromine industry, along with electronics, plastics, furniture and foam manufacturers are working with the U.S. EPA and others to find viable alternatives to PBDEs. Scientists are still working to figure out how PBDEs move around in the environment and what might be our biggest exposure routes. Research indicates that house dust (we spend up to 80 percent of our time indoors) and food (which absorbs compounds floating around in the air) are likely candidates.



### Educate yourself!

Given that we don't know exactly where our exposure to PBDEs is coming from, what's a person to do? One option is to become a knowledgeable consumer. Replace foam-backed carpet with a sustainably-harvested wood or bamboo floor. Seek out companies that are BFR-free, such as IKEA or European Sleepworks. The Silicon Valley Toxics Coalition maintains a list of computer manufacturers in various stages of phasing out heavy metals and PBDEs (see [www.svtc.org](http://www.svtc.org) for their Clean Computer Campaign.) The U.S. EPA's Design for Environment program is working with U.S. furniture manufacturers along the same lines ([www.epa.gov/dfe/projects/flameret](http://www.epa.gov/dfe/projects/flameret).) If you're breastfeeding, rest assured that breast milk, with its remarkable protective abilities, is still the best food for a baby even when it's contaminated with the chemical residues of our industrial culture.

*Ann Blake, PhD, is a biologist working with governments, public health and environmental advocates to find alternatives to toxic chemicals in manufacturing and consumer products. A CallEPA inspector from 1993 to 2002, Blake now works as a consultant and continues to track toxic chemicals issues.*



# ALTERNATIVES CORNER

## Show Your Lawn Some Love

April is National Lawn and Garden month and April 30 is Love Your Lawn Day. What better way to love your lawn than to reevaluate your lawn care activities. While your lawn is only a small piece of land, if you take into account all of the lawns in California, it adds up to a significant area. According to the last US Environmental Protection Agency (USEPA) pesticide usage report, 102 million pounds of pesticides were applied to lawns and gardens in the United States in 2001<sup>1</sup>. Your lawn care activities along with everyone else's make a difference to the environment and our watersheds, including the health of you, your children, pets, and neighbors.

Studies have linked the use of lawn herbicides and pesticides to an increase in health problems to children and pets. Children and pets spend more time on lawns than adults. Exposure to herbicide treated lawns was shown to increase the risk of bladder cancer by four to seven times in Scottish Terrier dogs according to a study done by Purdue University last April<sup>2</sup>. And while pesticides targeted for residential use are considered "safe" when used as directed, homeowners commonly use up to ten times as much pesticide per acre as farmers.

**Thatch is a layer of living and dead organic matter that occurs between the green matter and the soil surface.**

One alternative to using chemical fertilizers is to grasscycle. Grasscycling is simply leaving grass clippings on your lawn after mowing. Researchers have found that clippings begin to decompose rapidly, and within a week after cutting, the nitrogen from the clippings begins to show up in new growth<sup>3</sup>. Grass clippings can provide up to one-half of the nitrogen needed by your lawn, and if the lawn ecosystem is healthy, will not lead to thatch. If your lawn is over watered, compacted, improperly mowed or when chemicals are used, soil may be slow to break down thatch. An active soil system on the other hand will facilitate this breakdown into nitrogen. Chemicals applied to lawns slow or stop the activity of decomposers—earthworms, bacteria, and fungi- and stall the breakdown of clippings.

To ensure that grasscycling is effective on your lawn, maintain a healthy soil system:

- Remove no more than one-third of the leaf blade at one cutting

- Water slowly, enough to wet the soil three inches deep.
- Use less toxic products and methods to control weeds and pests. Corn gluten meal can be used to prevent broad leaf weeds from germinating. Spiked sandals may be used to aerate soil and to kill grubs.
- Use fertilizers that are slow release like blood meal and organic mixes.

For additional information on grasscycling please visit the Recycleworks website [www.recycleworks.org](http://www.recycleworks.org) or call 1-888-442-2666.

LESS-TOXIC PEST MANAGEMENT

TIPS FOR A HEALTHY

# BEAUTIFUL LAWN

**IRRIGATE AN ESTABLISHED LAWN PROPERLY**

- Before you irrigate, check the soil moisture with a soil probe or trowel. The top 2" to 3" should feel almost dry before you add more water.
- After watering, test for water penetration again with the soil probe or trowel. Push a trowel into the soil and tilt it forward. If the soil isn't wet 4" to 6" down, continue watering until it is. Grass roots will grow deeper and the lawn will be healthier. Track the watering time so you know about how long to water.

**FEED YOUR SOIL BY LEAVING GRASS CLIPPINGS ON THE LAWN**

- Grass clippings can provide most of the nutrients needed by a lawn if the clippings are small enough to decompose quickly without forming mats on top of the living grass. Remove only 1/3 of the blade at any one time (see Mow the Right Way, next column).
- To decompose clippings, soil must be biologically active, i.e., contain bacteria, fungi, insects, worms, and oxygen. Soil under a lawn that has been heavily fertilized or frequently

**MOW THE RIGHT WAY**

- Remove no more than 1/3 of the leaf blade at one cutting. Removing more can be very stressful for the plant and increase pest and disease problems.
- Mow when the grass is dry.
- During the summer months, cut the grass higher to help retain soil moisture.
- Keep mower blades sharp. Dull blades wound the grass and make it more vulnerable to pests and diseases.
- Alternate your mowing pattern frequently to avoid compacted runs.
- If rust disease is present in your lawn, clean your mower between mowings to prevent spreading the disease.

**DEAL SENSIBLY WITH WEEDS**

- Decide how many weeds you can tolerate. It is not realistic to expect a completely weed-free lawn.
- Dig up weeds by hand and sprinkle grass seed on any bare spots so weeds can't fill in. Water regularly with a fine spray until the grass sprouts.



Choose less toxic products for your home and garden. Look for this symbol before you buy.

To get the Beautiful Lawn fact sheet and other information on less toxic pest control and to learn about stores that carry less toxic products, visit [www.ourwaterourworld.com](http://www.ourwaterourworld.com) or call 650-599-1325.

1. Pesticide Industry Sales and Usage: 2000 and 2001 Market Estimates, United States Environmental Protection Agency, [http://www.epa.gov/oppbead1/pestsales/01pest-sales/market\\_estimates2001.pdf](http://www.epa.gov/oppbead1/pestsales/01pest-sales/market_estimates2001.pdf)

2. Journal of the American Veterinary Medicine Association 2004; 24:1290-1297

3. The Chemical Free Lawn. 1989. Warren Schultz

## Clean Out Your Medicine Cabinet During Earth Week April 18-22

Since April 2002, San Mateo County Stormwater Pollution Prevention Program (STOPPP) has partnered with San Mateo County Environmental Health to collect mercury thermometers from the public. We have collected approximately 8,300 thermometers or 900 pounds of mercury from residents, protecting human health and water quality.

The newest concern for water quality is prescription medications. A USGS study recently detected antibiotics, antidepressants, and hormone medications in waterways nationwide. While scientists study impacts on humans and marine life, we need to protect our waterways by disposing of medications properly.

All of the following locations will be exchanging mercury thermometers for digitals, some will accept pharmaceuticals and thermometers. These locations will accept these products, only during Earth Week. If you cannot make those dates, visit [www.smhealth.org/hbw](http://www.smhealth.org/hbw) or call (650) 363-4718 for an appointment to dispose of medications and other household hazardous waste.



### Pharmaceuticals and Thermometers

**Atherton:** Permit Center, 93 Station Lane, 752-0526 (M-F 9-12 and 1-5)

**Belmont:** City Hall, 1070 Sixth Ave., 595-7427 (M-F 8-12 and 1-5)

**Brisbane:** City Hall, 50 Park Pl., (415) 508-2130 (M-Th 8-1 and 2-5 and F 8-1)

**Burlingame:** City Hall, 501 Primrose, 342-3727 (M-F 1-3)

**Colma:** 1188 El Camino Real, 757-8888 (M-F 8-12 and 1-5)

**Daly City:** Dept. of Water/Wastewater Resources, 153 Lake Merced Blvd., 991-8208 (M-F 8-4:30)

**East Palo Alto:** 2200 University Ave., 853-3165 (M-F 8-4)

**Half Moon Bay:** City Hall, 501 Main St., 712-6660 (M-F 8:30-5)

**Hillsborough:** Thermometers at Town Hall Finance Counter, Pharmaceuticals at The Police Station 1600 Floribunda Ave., 375-7444 (M-Th 7:30-5:30 and F 7:30-12:30)

**Pacifica:** 151 Milagra Dr. at Oceana, 738-3768 (M-F 7:30-5)

**Redwood City:** Environmental Health, 455 County Center, 4th Floor, 599-1514 (M-Th 7:30-5:30)

**San Bruno:** City Hall, Public Works Counter, 567 El Camino Real, 616-7065 (M-F 8-5)

**San Mateo:** City Hall Permit Counter, 330 W. 20th Ave., 522-7342 (M-F 9-2)

### Thermometers ONLY (do not bring pharmaceuticals)

**Menlo Park:** City Administration Bldg., 701 Laurel, 330-6763 (M-Th 7:30-5:30, F 8-5)

**Millbrae:** City Hall, Public Works Office, 621 Magnolia Ave., 259-2339 (M-F 8:30-5)

**Redwood City:** Public Works Dept., 1400 Broadway, 780-7464 (M-F 7:30-4:30)

**San Carlos:** City Hall, 600 Elm St., 802-4100 (M-F 8-12 and 1-5)

**So. San Francisco:** West Orange Library, 840 West Orange, (M,T,W,F 10:30-1:30); Grand Ave Library, 306 Walnut (M,T,Th,F 10:30-1:30), 829-3848

### Important disposal instructions

**THERMOMETER:** Transport thermometer in its original plastic case or sealed in two resealable bags.

**MEDICATION:** Because of privacy laws residents must remove labels from medication containers or may dump the waste into another container.

**No controlled substances will be accepted;** medications will be incinerated to ensure they are destroyed.

For more information contact the phone number listed for your desired drop off point.