

NORTHWEST ENVIRONMENT WATCH

www.northwestwatch.org/toxics

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BC women contaminated with toxic flame retardants

Breastmilk study confirms needs for chemical phase-out; says breastfeeding still best for baby and mom

A new study of 40 mothers, including 10 from British Columbia, found PBDEs (polybrominated diphenyl ethers) in the breastmilk of every woman tested. PBDEs—toxic chemicals widely used as flame retardants in furniture foams, industrial textiles, and consumer electronics—have been shown to have a wide range of health effects on laboratory animals. Overall, the levels of PBDEs were 20 to 40 times higher than levels found in European and Japanese women.

“The women in the study have some of the highest PBDE levels on record,” said Clark Williams-Derry, research director for Northwest Environment Watch (NEW), the Seattle research and communication center that conducted the study. The study confirms research that PBDEs are building up rapidly in people and the environment, with levels in many countries doubling every two to five years.

“These results should serve as a wake-up call to our government,” said Paul Muldoon, executive director of the Canadian Environmental Law Association. “An immediate ban on brominated flame retardants is needed in Canada.”

The report emphasized that mothers should continue breastfeeding. Research shows that despite the presence of contaminants, breastfeeding is the healthiest choice for infants. Benefits include reducing the risk of many illnesses in infants, as well as the incidence of anemia and some cancers in women. Breastmilk was chosen as a measure because it is the most convenient body fluid to obtain and study, and because it provides a good proxy for contamination levels experienced by the developing fetus.

Specific findings from the report include:

- **High PBDE levels:** The study tested breastmilk of 40 women from BC, Montana, Oregon, and Washington. PBDEs were found in all 40 samples, suggesting that all people in the region are contaminated with PBDEs. Levels ranged from 6 to 321 parts per billion (ppb), as measured in milk fat, with a median level of 50 ppb (half the samples were above 50 ppb and half below). Fifteen of the 40 women sampled had at least 100 ppb of PBDEs in their milk. The levels are comparable to levels found in other studies in North America, but 20 to 40 times higher than levels found in Sweden and Japan. Median PBDE levels in North America have risen dramatically since the late 1980s.
- **Some elevated levels of deca-PBDE:** Deca-PBDE (PBDE-209), the most widely used form of PBDE, was detected in 24 of the 40 samples tested; levels were as high as 4 ppb, which exceeds the total concentration of all PBDEs typically found in Japanese or northern European samples. Because the bromine industry has long held that deca-PBDE is minimally toxic, deca-PBDE has not received the same regulatory scrutiny as penta- and octa-PBDEs. But new studies suggest deca-PBDE can break down into other forms of PBDE that are more harmful and more readily absorbed by people.

- **British Columbia results:** The 10 British Columbian women tested had a median level of 32 ppb, the lowest median of the four regions. But the highest level found in BC was 308 ppb, one of the highest detected in the study. Further testing is needed to clarify whether these levels are representative of the BC population at large.
- **Health effects similar to those of PCBs:** Studies on laboratory animals have shown that PBDEs can impair memory and learning, alter behavior, delay sexual development, and disturb thyroid hormone levels. PBDEs are structurally similar to PCBs (polychlorinated biphenyls), a now-banned class of chemicals that have been linked with a host of developmental delays and deficits in children.
- **Exposure is unavoidable:** PBDEs are so prevalent that all Canadians may be exposed to the compounds by inhaling dust, by handling consumer products, or through food, particularly fish. Recent studies have detected PBDEs in a wide range of supermarket foods; as well as in orcas, other marine mammals, osprey, and salmon. The fact that every woman tested contained PBDEs—regardless of diet, age, or locale—suggests that the most effective way to reduce contamination is to stop pollution at the source and use alternatives.
- **Chemical phase-out needed:** The study recommends that local and federal governments ban all forms of PBDEs from commerce, including deca-PBDE; and develop programs to monitor chemical contaminants in people. The federal government in Canada has finished an initial assessment of the risk of PBDEs and is considering strategies to minimize the impact of PBDEs. In the interim, the Canadian Environmental Law Association (CELA) recommends a PBDE ban using regulatory tools instead of waiting for voluntary actions.

Sweden was the first country to phase out some of the most toxic forms of PBDEs in the 1990s, followed by the European Union and the California legislature; after Sweden removed PBDEs from the marketplace in the 1990s, contamination levels in breastmilk began to decline. The report notes that economically viable alternatives to PBDEs exist and companies such as Ikea and Volvo have already eliminated PBDEs from their products.

“I don’t like the fact that we have these chemicals in our bodies,” said Erin McAllister, a Vancouver, BC mother who participated in the study. “Why are countries like Sweden on the leading edge of all these innovations? Canada should be as well.”

To reduce northwesterners’ exposure to toxic chemicals, the report also recommends requiring more rigorous scrutiny before new chemicals are used in industry. Roughly 80,000 different synthetic compounds have been introduced since the 1940s, yet only a relative handful have been tested for their potential health effects in humans.

Northwest Environment Watch is a Seattle-based nonprofit research and communication center that covers the Pacific Northwest, also known as Cascadia, a region including British Columbia, Washington, Oregon, Idaho, and adjoining parts of Alaska, Montana, and California. More information on the study and methodology is available at www.northwestwatch.org/toxics.