

PBDEs and Your Health

A TOXIC-FREE LEGACY COALITION FACT SHEET

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Researchers have found PBDEs, or toxic flame retardants, in wildlife, our homes, food, and even our bodies. These chemicals, used primarily in computers, televisions, residential upholstered furniture, mattresses, and office furniture, are highly toxic and have been linked to damaging health effects. This is why a broad coalition of doctors, nurses, children's advocates, and environmentalists is urging the legislature to pass legislation (SHB 1024/ SSB 5034) to eliminate PBDEs in consumer products.

PBDEs In Our Bodies

PBDEs are showing up in our bodies at astounding levels. For example:

- Studies show that five percent of American women have levels of PBDEs in their bodies greater than levels that have been shown to cause reproductive problems in laboratory animals. (McDonald 2005).
- Levels of PBDEs in the breast milk of Pacific Northwest mothers were 20-40 times higher than levels found in Europe or Japan (NEW 2004).
- In Washington state, a recent body burden study of ten people found PBDEs in each study participant, with one participant's levels approaching those causing reproductive harm in laboratory studies (Schreder 2006).
- Scientists have even found PBDEs in cord blood samples taken from newborn babies (Mazdai 2003).

How Are We Exposed?

We are exposed to PBDEs through house dust, indoor air, direct contact with consumer products, and food. PBDEs do not fully bind to the products they are used in so they escape into the air in our homes and workplaces and adhere to dust particles (Janssen 2005). Because people spend more than 80% of their time indoors, indoor dust is considered a major route of exposure (Stapleton 2005).

Workers who work with or manufacture PBDEs also have a high level of exposure. Studies have found alarming levels of PBDEs in workers who recycle, repair, and maintain computers, as well as those who recycle printed circuit boards (Thuresson 2005; Thuresson 2004).

Children Bear the Burden

Unfortunately, studies indicate that children's exposures to PBDEs are much higher than those of adults. For example:

- Studies suggest young children are receiving up to 300 times greater exposure to PBDEs relative to adults, primarily from breast milk ingestion and inadvertent dust ingestion (Jones-Otazo 2005; Stapleton 2005).
- In a study of a family of four, researchers found the children had much higher levels of PBDEs than the adults, indicating a larger exposure for children (Fischer 2006).

These exposures can occur at levels close to those reported to induce developmental and neurotoxic effects in mice and rat studies (Viberg 2003).



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What Does Exposure to PBDEs Mean for Our Health?

PBDEs have been linked to the following damaging health effects, in some cases at levels that are at or near those observed in the U.S. population:

- Learning, behavior, and memory problems. Studies in rodents indicate exposure to PBDEs during brain development has permanent effects on learning, memory, and behavior. (Viberg 2003).
- Liver toxicity and cancer. The U.S. Environmental Protection Agency has classified the deca form of PBDEs as a “possible human carcinogen” (ATSDR 2004). Rodents exposed to deca developed pre-cancerous nodules on their livers (NTP 1986).
- Thyroid problems. Studies show PBDEs decrease thyroid hormone levels and IQ (Zhou 2002).
- Reproductive problems. PBDEs have also been found to cause birth defects, reduced weight gain during pregnancy, changes in ovary cells, and reduced sperm count. (Schreder 2006).

Costs of Ignoring Health Effects of PBDEs Are High

Not only are the health effects of PBDEs devastating to individuals and their families, the societal costs of ignoring PBDEs are extremely high. Costs of medical care, special education, and lost economic productivity are enormous. For example, the costs of cognitive impairments due to lead, a neurotoxin similar to PBDEs, are estimated to approach \$43 billion per year nationally (NSCDC 2006). In Washington state, diseases linked to environmental exposures cost an estimated \$2.5 billion per year in health care (Davies 2005).

We Can Have Fire Protection Without Poisons

Fortunately, safer alternatives to PBDEs exist that meet fire safety standards. Numerous companies, including Dell, Ikea, Hewlett Packard and Sony, have already phased out their use of PBDEs. **The Washington state legislature must take action to phase out PBDEs in favor of alternatives that meet fire safety standards and pass SHB 1024/ SSB 5034.**

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