

LEARNING AND DEVELOPMENTAL DISABILITIES INITIATIVE

PBDEs (Chemical Flame Retardants) FACT SHEET

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What are PBDEs?

Polybrominated Diphenyl Ethers are a chemical family produced in the U.S. and abroad that are used as flame retardants in computer plastics, polyurethane foam products, and commercial textiles. PBDEs are believed to be slowly released over the life of these products and make their way up the food chain and into peoples' bodies.

Some scientists call PBDEs the "Son of PCBs," because they look like the PCBs, behave like the PCBs, and have some of the same toxic effects as the PCBs. Meanwhile, PCBs were banned in the U.S. in 1976, but PBDEs are still in heavy use in this country, especially in California.

Levels of PBDEs are increasing in people and the environment.

- Swedish studies show that the levels of PBDE in human breastmilk have increased 40-fold since 1972.
- North American breastmilk samples contain 40 times the amount of PBDEs found in Swedish samples.
- Breast tissue from San Francisco Bay Area women show the highest levels of PBDE yet found in people.
- Researchers report increasing levels of PBDEs animals as diverse as fish in Virginia to whales in the Arctic.

Concerns about the effects of PBDEs on children's health are mounting.

- Large numbers of women in the U.S. may carry PBDEs in their bodies, passing them on to their babies in the womb during critical stages of their babies' development.
- PBDEs may impair the intelligence and motor skills of children. All PBDEs disrupt thyroid hormone balance because the chemical structure of PBDEs closely resembles thyroid hormones. Thyroid hormone function is critical to proper brain development both in the womb and after birth.
- Newborn mice exposed to PBDEs experienced damage to their nervous systems, resulting in learning and motor deficits that worsened as the animals grew older.
- PBDEs are also suspected to cause cancer. More research is forthcoming.

Momentum is building worldwide to reduce and eliminate the use of PBDEs.

- The European Union voted in December 2002, voted to ban two of the worst kind of PBDEs from use and manufacture in member countries.
- Germany has banned the use of PBDEs because, when burned, they also produce dioxin, considered the most toxic chemical known to science.
- A number of electronics and furniture manufacturers, including Motorola and Ikea, have adopted official policies to phase out their use of PBDEs.
- These efforts have made available numerous alternatives to PBDEs safe to human health, cost effective, and capable of meeting stringent fire standards.