

Health concerns and childhood exposure to Flame Retardants

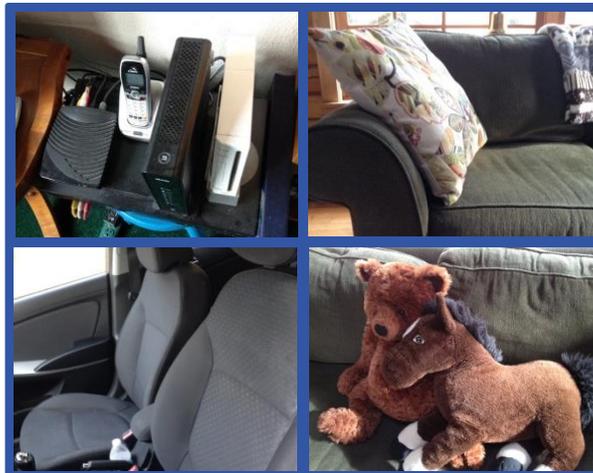
Flame retardants are in many consumer and children's products.

Flame retardants are chemicals added to a variety of products to meet required and voluntary fire safety codes. There are two classes of flame retardants:

- **Reactive:** Flame retardants are tightly bound, with low risk of escape over time.
- **Additive:** Flame retardants are not tightly bound to the material and escape over time.

Examples of materials treated with flame retardants include:

- Polyurethane foam
- Upholstered furniture
- Children's toys
- Drapes
- Flooring, carpets
- Crib mattresses
- Electronics
- Building insulation
- Auto foam, interiors



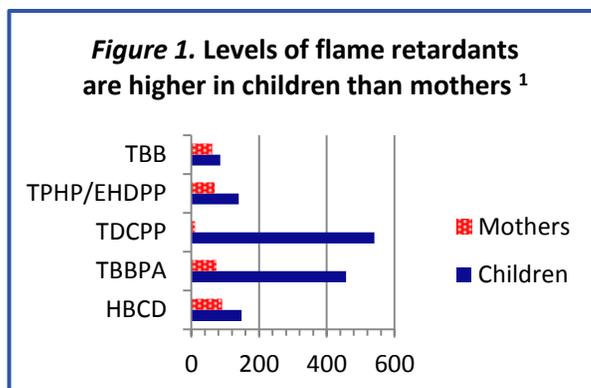
Everyday products like home electronics, furniture, auto seats, and children's toys contain flame retardants.

Flame retardants escape into household dust and indoor air.

Most consumers are not aware that everyday products can cause chemical exposure. Consumer labels often do not list flame retardant ingredients or provide warnings about the release of chemicals from their products. When released, flame retardants can contaminate household dust, indoor air, food, and drinking water. This is primarily a problem with additive flame retardants.

Flame retardants are found in people's bodies, and children have higher levels.

Biomonitoring studies have found flame retardant chemicals in people's urine, blood, tissues, and breastmilk. Developing infants and children are at higher risk for exposure and harm because of their physiology, natural behaviors, and rapid development. In animal studies, flame retardants have caused health effects like cancer, reproductive and developmental impacts, endocrine disruption, and organ damage.



¹ Sources available upon request. Plot shows maximum measurements of metabolites of TBB, TPHP/EHDPP, and TDCPP measured in urine in nanograms/milliliter (ng/mL) and TBBPA and HBCD measured in serum in nanograms/gram (ng/g) lipid weight.

Washington State legislature has taken action on flame retardants.

- **RCW 70.76:** In 2007, the legislature banned PBDEs in products sold in the state, excluding medical devices, transportation equipment, and certain recycling materials. For Deca- BDE, a specific PBDE flame retardant, the legislature directed the Washington State Departments of Ecology and Health to confirm safer alternatives were available to meet fire safety standards in certain products.

The state agencies conducted an assessment and concluded: 1) Chemical flame retardants were not needed to meet fire safety standards in furniture foam or cover materials; and 2) Safer alternatives existed for Deca- BDE in the hard plastics of electronic enclosures. In 2011, the state banned Deca-BDE in televisions, computers, and residential upholstered furniture. Read the full report, “Alternative Assessment for Deca-BDE” at <https://fortress.wa.gov/ecy/publications/summarypages/0907041.html>.

- **RCW 70.240:** The 2008 Children’s Safe Products Act requires companies to report annually to Ecology if their children’s products sold in the state contain “Chemicals of High Concern to Children.” Currently, there are five flame retardants listed: TCEP, TDCPP, HBCD, Deca-BDE, and TBBPA.

Health recommends reducing children’s exposure to flame retardants.

A number of flame retardants escape from consumer products and contaminate household dust, indoor air, and people’s bodies. Children are often at higher risk of exposure. To protect children from exposure to flame retardants, Washington State should:

- **Reduce the use of additive flame retardants** in consumer products. Additive flame retardants readily escape from treated materials. In contrast, reactive flame retardants are likely to stay in treated materials.
- **Prioritize:**
 - Chemicals with clear **evidence of exposure in people** and potential **toxicity**, especially for the developing fetus and child.
 - **Persistent** chemicals that don’t degrade in the environment. These can create a chronic pattern of exposure for people and wildlife.
 - **Bioaccumulative** chemicals that concentrate in living organisms. These can reach high concentrations in fish and people even when environmental concentrations are low.



Children are at higher risk of exposure to flame retardants than adults.

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