

## What are flame retardants?

Flame retardants are chemicals used in a wide variety of products, including foam, plastics and textiles. Flame retardants are added to products to meet flammability standards and are intended to slow the spread of a fire and provide additional escape time. Over time, concerns have increased about the potential negative effects of many flame retardants on human health and the environment.

The greatest concern comes from a family of chemicals known as halogenated flame retardants, which use chlorine or bromine as a building block. Some of these chemicals, called polybrominated diphenyl ethers (PBDEs), have already been phased out or restricted, but others are still widely used.

### Flame retardant report

In 2014, the Washington Legislature directed the Department of Ecology (Ecology) to review information on flame retardants, test products, and develop recommendations for bans or restrictions on the use of flame retardants in children's products and furniture. The Legislature requested specific information on tetrabromobisphenol A (TBBPA) and antimony, as well as other flame retardants detected in children's products and furniture.

Ecology released its report in January 2015. Ecology's recommendations are divided into four categories:

#### 1. Flame Retardants in Children's Products and Furniture

Ecology found that sufficient evidence exists to support enacting restrictions on the use of ten flame retardants in children's products and furniture that contain polyurethane foam and fabric.

#### Recommendations

- Establish a limit of 1,000 parts per million (ppm) for the following flame retardants – TDCPP, TCPP, TBPH, TPP, V6, IPTPP, TCEP, TBB (see endnotes on page 2).
- Establish a limit of 1,000 ppm for HBCD and additive TBBPA in textiles used in children's products and furniture.

### MORE INFORMATION

The full report, "*Flame Retardants, A Report to the Legislature*," is available at <https://fortress.wa.gov/ecy/publications/SummaryPages/1404047.html>.

#### PBDEs and other halogenated flame retardants

Much of the concern about flame retardants focuses on a class of chemicals known as halogenated flame retardants, which use bromine or chlorine as a building block.

In 2008, Washington State passed a law restricting the use of polybrominated diphenyl ethers, or PBDEs. This family of flame retardant chemicals has been shown to build up in the environment and affect the health of humans and animals. Washington's law led to a national agreement to phase out the chemical.

[www.ecy.wa.gov/programs/swfa/pbt/pbde.html](http://www.ecy.wa.gov/programs/swfa/pbt/pbde.html)

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## 2. Tetrabromobisphenol A (TBBPA)

Ecology found that sufficient evidence does not exist at this time to support enacting restrictions on the use of TBBPA in children's products, furniture, or electronics, in its reactive form, in which TBBPA is chemically bound to other ingredients. However, additional information is needed on the use of TBBPA used as an additive, where the potential for exposure is greater.

### Recommendations

- Require manufacturers to report their use of additive TBBPA in consumer products sold in Washington at levels exceeding 1,000 ppm.
- Encourage manufacturers to use identified safer alternatives to TBBPA.
- Ecology should work with stakeholders to gather more information about the use of both reactive and additive TBBPA in electronics as well as other products where TBBPA is used.

## 3. Antimony as Antimony Trioxide (ATO)

Ecology found that sufficient evidence does not exist to support restricting ATO in children's products or furniture. Although ATO is toxic, there are significant data gaps regarding exposure, and safer alternatives have not been identified. Additional information is needed on the use of ATO and the potential for people and the environment to be exposed.

### Recommendation

- Require manufacturers to report their use of ATO in products.

## 4. Other Key Findings for Halogenated Flame Retardants

Further study is needed to evaluate the potential impact of halogenated flame retardants on human health and the environment and to assess the availability of safer alternatives.

### Recommendations

- Conduct a comprehensive chemical action plan on flame retardants used in electronics and other products known to contain halogenated flame retardants.
- Require that manufacturers report their use of flame retardant chemicals in products sold in Washington (other than children's products and furniture) at levels that exceed 1,000 ppm.
- Enact policies that provide incentives to use alternative assessments and safer alternatives in consumer products and manufacturing processes.
- Identify key data gaps in understanding human exposure to flame retardant chemicals, including how biomonitoring could address these gaps and what studies should be performed.
- Align state purchasing policies to support manufacturers that are using the safest identified alternatives.

**Endnotes:** **TDCPP:** Tris(1,3-dichloro-2-propyl) phosphate; **TCPP:** Tris(1-chloro-2-propyl) phosphate; **TBPH:** Bis(2-ethylhexyl)-2,3,4,5-tetrabromophthalate; **TPP:** Triphenyl phosphate; **V6:** Antiblaze® V6 or 2,2-; **IPTPP:** Isopropylphenyl phosphate; **TCEP:** Tris(2-chloroethyl) phosphate; **TBB:** (2-ethylhexyl)-2,3,4,5-tetrabromobenzoate; **HBCD:** Hexabromocyclododecane.