



# Focus on interim chemical action plan for PBDE flame retardants

from Ecology's Environmental Assessment Program

## Executive Summary

The "Interim Chemical Action Plan for PBDEs" by the departments of Ecology and Health identifies actions the state may take to reduce the threat of PBDEs (polybrominated diphenyl ethers) in the environment. In his executive order of January 2004, Governor Gary Locke directed the Department of Ecology (Ecology), in consultation with the Department of Health (DOH), to develop a plan to reduce the threat of PBDEs in the environment.

The most current scientific information about the environmental and human health risks of PBDEs has been thoughtfully reviewed in the development of this plan, as have the experiences of other states and Europe where policies to reduce PBDEs have been crafted. After many months of study, after consulting with some of the leading researchers in the field, and after hearing from hundreds of concerned residents and groups, Ecology and DOH have outlined steps contained within this plan that will reduce the effect of PBDEs on human health and the environment.

This interim plan includes revisions to the draft chemical action plan released in October 2004. Changes were based on comments received during the public comment period and from the external advisory committee that has guided Ecology and DOH throughout the development of this document. Ecology and DOH will release the final PBDE Chemical Action Plan in December 2005.

**Definition and Use:** PBDEs are members of a broader class of brominated chemicals used as flame retardants. They are often added to plastics, upholstery fabrics and foams in products as common as computers, TVs, furniture and carpet pads. There are three main types of PBDEs used in consumer products: Penta-BDE, Octa-BDE and Deca-BDE. Each of these types of PBDEs has different uses and different toxicity. Manufacturers of Penta-BDE and Octa-BDE have agreed to voluntarily stop producing these two forms of PBDEs by the end of 2004. Deca-BDE is not part of this agreement and currently makes up 80 percent of overall PBDE use in the US.

Flame retardants like PBDEs are added to products so that they will not catch on fire or burn so easily if exposed to flame or high heat. Fires are a leading cause of death and injury in the U.S. Most plastic and foam are petroleum based and catch fire easily. Strict fire safety regulations in the U.S. require manufacturers to take steps to reduce the flammability of their products. Actions proposed by Ecology and Health with respect to limiting the use of PBDEs were considered within the context of ensuring adequate levels of fire protection.

**Human Health and the Environment:** In recent years, PBDE flame retardants have been found in the environment, in foods and in people. PBDEs have been measured in blood, fat and breast milk in people around the world. The highest levels of PBDEs in people have been found in Canada and in the U.S., which are the largest producers and consumers of PBDE products. The components of the Penta and Octa-BDE formulations are those most often found in food and in people, while Deca-BDE is more prevalent in sediment and indoor dust. Although PBDEs have been detected in everything from food to indoor air and dust, exactly how people are exposed to PBDEs is an area of ongoing study. PBDEs build up in the body because they reside and persist in fatty tissue.

Concern about the human health risks from exposure to PBDEs comes from studies of animals in laboratory settings. The health effects of PBDEs have not been studied in humans. Results of studies with laboratory animals suggest that exposure to PBDEs in the womb can disrupt neurological development. This kind of damage causes altered behavior, learning and memory. Decreases in thyroid hormone and reproductive problems are also seen in laboratory animals. Most of these studies point to the components of Penta- and Octa-BDE formulations as being of primary concern with respect to human health. Deca-BDE is the least toxic of the three forms but may degrade into the more toxic Penta-BDE or Octa-BDE components.

It is important to understand that the mere presence of chemicals does not necessarily represent a health risk. Although PBDEs are present in people and many foods, these levels have not yet reached those shown to be toxic in lab animals and do not pose an immediate health threat. If PBDE levels continue to rise, however, real health risks can be expected, particularly for our children. Therefore, Ecology and DOH propose the following recommendations to reduce the impact of PBDEs on both human health and the environment.

**Recommendations:** Recommendations for reducing PBDEs in the environment and for protecting human health are detailed in the body of this plan. Many of the policy options that were considered are also presented and the rationale for the policies recommended is provided. Key recommendations are summarized as follows.

- The Washington State Legislature should prohibit the manufacture, distribution (but not transshipment) or sale of new products containing Penta-BDE and Octa-BDE in Washington state by July 2006. The ban may include an exemption for new products that contain recycled material from products that contained Penta-BDE and Octa-BDE, pending further review.
- Ecology and DOH, in consultation with stakeholders, should develop a proposal for a ban on appropriate products containing Deca-BDE, with recommendations by December 2005. Twelve months time would allow the agencies to determine how to ban Deca-BDE in a way that does not jeopardize fire safety, unnecessarily burden Washington businesses, or prompt the use of alternative flame retardants that might be equally or more harmful.
- Ecology should establish, by July 2006, appropriate disposal and recycling practices for products containing PBDE flame retardants.
- Ecology and DOH should work with other states and interested parties in a dialogue toward improving U.S. chemical policy. Current U.S. chemical policy has resulted in only minimal testing of many chemicals currently in use.
- The state's purchase of PBDE products should be restricted in appropriate contracts, consistent with Executive Order 04-01.
- Health should develop methods and materials for education on how the public can minimize exposure to PBDEs. This will include information on the benefits of breastfeeding and advice about eating fish as part of a healthy diet. DOH continues to recommend breastfeeding as the best choice for feeding infants and encourages Washingtonians to eat a variety of fish as a good source of protein and beneficial fatty acids.
- The state Department of Labor and Industries (L&I) should develop and communicate ways for employers and employees at large to minimize exposure to PBDE-containing dust using standard industrial hygiene controls.
- DOH and L&I should continue to investigate the feasibility of implementing a workplace exposure study in collaboration with the federal Centers for Disease Control and Prevention.

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