Chemical Action Plans - Ecology's Strategy for Reducing Toxic Threats

from Ecology's Toxics Cleanup Program

Reducing Toxic Threats is one of Ecology's five strategic priorities. Of particular concern are persistent, bio-accumulative toxins (PBTs), a group of chemicals whose distinctive properties pose a unique threat to our society and environment.

- PBTs are durable and break down very slowly, if at all, when released into the environment.
- Animals and people accumulate PBTs in their bodies, primarily from the food they eat. As these chemicals move up the food chain, they increase in concentration.
- Exposure to PBTs has been linked to a wide range of toxic effects in fish, wildlife and humans, including effects on the nervous system, reproductive and chemical problems, immune-response suppression, cancer and endocrine hormone disruption.

In December 2000, the Department of Ecology (Ecology) released its PBT Strategy. This strategy outlined a series of actions Washington is taking to reduce and phase out existing sources of risk to human health and the environment. At the heart of this strategy is the Chemical Action Plan, or CAP. According to this approach, Ecology – in cooperation with the Department of Health (DOH) – identifies and prioritizes chemicals with the goal of targeting "the worst of the worst." The CAP, which is a joint Ecology-DOH document, then lists the sources of the target chemical and spells out specific actions that we can take for reducing exposures to the chemical. Washington is the first state in the nation to take this methodical, strategic approach to reducing threats from PBTs.

The Chemical Action Plan (CAP) Process:

Select A Priority Chemical

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Establish Joint Ecology-DOH Workgroup

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Select External Advisory Group

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Collect Information

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Deliberate and Draft Recommendations

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Public review and comment

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Final CAP

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Implementation and Coordination with other agencies

The Mercury Chemical Action Plan

Ecology and DOH's first CAP, published in January 2003, was for mercury. It contains a series of recommendations to virtually eliminate mercury in the environment by 2015. Among the projects that resulted from the mercury CAP were:

- A Memorandum of Understanding (MOU) between Ecology and the Washington State Dental Association supporting 'Best Management Practices' for handling mercury waste from dental clinics.
- An MOU between Ecology and the Washington Hospital Association to reduce or eliminate the use of mercury-containing products.
- An MOU among Ecology, the Automotive Recyclers of Washington, and the vehicle manufacturers to collect and recycle mercury switches used in passenger cars and trucks.
- Participation in a nationwide "industry take-back" program for mercury-containing thermostats.

In addition, the 2003 Legislature passed the Mercury Education and Reduction Act (MERA), which greatly supported the overall mercury-reduction effort. It requires, among other actions, the state to purchase mercury-free alternatives and the manufacturers of fluorescent lamps sold in Washington to label them when they contain mercury.

Ecology estimates that, since the inception of the Mercury CAP, the release of more than 10,000 pounds of mercury (about 2,300 pounds per year) has been prevented in Washington.

Now a new challenge confronts mercury reduction efforts. Because they save energy and may help slow the process of climate change, many homes and offices are switching from the traditional incandescent bulbs to compact fluorescent lightbulbs. However, since compact fluorescents contain a small amount of mercury, with millions of these bulbs in use, it is important to have a system of recycling and reclamation in place for proper disposal when these bulbs burn out. Ecology is working with other state agencies, as well as with partners nationwide, on improving recycling programs.

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The PBDE Chemical Action Plan

Polybrominated Diphenyl Ethers, or PBDEs, refers to a group of chemicals added to a wide range of consumer products as a flame retardant. However, PBDEs escape from these products and end up dispersed throughout the environment. PBDEs have been found in marine and fresh water sediments, air samples in the Arctic, a variety of foods and fish, human blood and breast milk, wildlife (bears, birds, orcas), and house dust.

Because of this dramatic distribution of PBDEs throughout the environment, and especially its impact on humans – where its concentration in breast milk in the US has been doubling every five years – Ecology and DOH selected PBDEs for the second CAP, finalized in January 2006.

The PBDE CAP called for legislation banning certain types of the chemical from consumer products. In the 2007 session, Washington state lawmakers passed an Ecology-sponsored bill that banned the use of PBDEs in mattresses starting in 2008. By 2011, upholstered furniture, televisions and computers sold in Washington will no longer contain PBDEs, provided that an effective flame-retardant alternative is available.

The Lead Chemical Action Plan

Ecology and DOH have now begun work on the third CAP – to reduce the amount of lead being released into the environment. Lead is harmful even in small amounts. It affects the central nervous system and in children can cause lifelong learning and developmental disorders. In adults, lead poisoning can impact all major organ systems, including reproduction. In spite of its toxicity, however, lead is one of the most common additives used in commerce. Since it is a natural element, it does not break down. And, even though it was removed from house paint (1978) and gasoline (1996), its overall use in industry has not declined. Today, lead is found in consumer products ranging from computers to vinyl hoses, from fishing weights to costume jewelry.

The CAP-development process begins with a joint Ecology-Health Department technical work group identifying where lead is found in the environment, where it poses the greatest risk, and what actions might be taken to reduce or eliminate it. An external advisory committee is also convened. This body is made up of government, private, and non-profit sector stakeholders. They advise the work group on the impacts of lead on public health health, business, and the local communities.

Once the information is collected through this process, Ecology will write a draft CAP. The advisory committee is given the first opportunity to comment on the draft CAP. Review and comment by the public at large follow next. Based on its findings and the comments received, Ecology will then issue the final Lead CAP.

Work on the lead CAP began in June 2007 and is expected to be completed by March, 2008.

More information:

- Multiyear PBT Chemical Action Plan Schedule
  www.ecy.wa.gov/biblio/0707016.html
- Mercury Chemical Action Plan
  www.ecy.wa.gov/biblio/0303001.html
- Polybrominated Diphenyl Ether (PBDE) Chemical Action Plan
  www.ecy.wa.gov/biblio/0507048.html

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PBT Milestones

2000
- Ecology Proposes PBT Strategy

2003
- Mercury CAP

2006
- PBT Rule
- PBDE CAP

March 2007
- Initial PBT Multiyear Schedule

2008
- Lead CAP

2009
- Polycyclic aromatic hydrocarbons* (PAHs)
- Update PBT schedule for additional priority chemicals

2010
- Perfluoroctane sulfonates** (PFOS)

** Compounds formed by the incomplete combustion of carbon-containing fuels, e.g., wood, coal and diesel.*

*** Formerly a key ingredient in 3M's Scotchgard stain repellent. Also used in fire extinguishing foams and the "non-stick" lining of microwave popcorn bags and fast-food wrappers.*