

## REDUCING THE PURCHASE OF PRODUCTS CONTAINING PERSISTENT, BIOACCUMULATIVE TOXINS (PBTs) BY GOVERNMENT AGENCIES

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### INTRODUCTION

Many public agencies are purchasing environmentally preferable products. While this practice originally started many years ago with "Buy Recycled" campaigns, some purchasers now are starting to look at other environmental attributes of the products they are buying, including toxicity, energy efficiency, user safety, and solid waste production. Over the last two years, INFORM has successfully launched a *Purchasing for Pollution Prevention Project*, which is underway in 16 states. This growing initiative is partnering with large-volume purchasers such as federal agencies, states, localities, and institutions (e.g., universities and hospitals) to minimize their consumption of products that contain or generate persistent and bioaccumulative toxins (PBTs). This initiative is reducing releases of this particularly dangerous class of toxic chemicals into the nation's air, waterways and workplaces, preventing exposure to employees and the public at large, and providing incentives to manufacturers to remove PBTs from their products altogether.

### MATERIALS AND METHODS

PBTs are pervasive in consumer goods such as:

- Cars, appliances and other electrical equipment with mercury switches;
- Mercury-containing fluorescent lamps, thermometers and thermostats;
- Paints, printing inks, and plastics made with heavy metal pigments and stabilizers;
- Computer screens and computer monitors with lead shields and solder;
- Lice shampoos and lotions with lindane, a "chemical cousin" of DDT not included on the POPs list;
- Lumber treated with pentachlorophenol or coal-tar derived wood preservatives;
- Lead-acid and nickel-cadmium batteries; and
- Furniture, electronics and building materials with brominated flame retardants.

According to the most recently available (2000) data from the expanded right-to-know programs in Massachusetts and New Jersey, more than 20 times the quantity of persistent toxic chemicals are shipped in consumer products than are generated as industrial waste.<sup>1</sup> Meanwhile, traditional pollution prevention programs at the federal and state levels have focused almost exclusively on minimizing the relatively small amount of industrial waste and virtually ignored the vast quantity of toxic chemicals entering the environment via consumer products. While a few consumer products containing PBTs (such as leaded house paint, DDT and PCBs) have been severely restricted or banned in the US, many others continue to be manufactured and sold here.

A PBT can wind up in a consumer or industrial product for several reasons:

1. *It is intentionally added to help a product perform a specific function* – to add color, strength, flame retardancy, flexibility or other attributes. (A manufacturer of polyvinyl chloride resin in New Jersey reported 23 million tons of cadmium compounds and over 2 million tons of lead compounds going into its products in 2000.)<sup>ii</sup>
2. *It is the product* (e.g., a lead sinker or wheel weight or elemental mercury used in a lab).
3. *It is an inherent contaminant of another ingredient in the product.* Coal tar-derived products such as creosote wood preservatives, asphalt, roofing pitch and some anti-dandruff shampoos “inherently” contain dibenzofuran, and polycyclic aromatic hydrocarbons (PAHs, including naphthalene). Similarly, zinc ore often “naturally” contains cadmium.
4. *It is generated as a by-product of the manufacturing process and unintentionally ends up in the product.* Chlorine bleach made in a plant using the mercury-cell process can contain trace amounts of “contaminant” mercury. Hexachlorobenzene is generated by industrial facilities that manufacture other chlorinated benzene compounds, such as para-dichlorobenzene used to make restroom deodorizing blocks and moth balls. Dioxin can end up in pulp and paper products that have been bleached with chlorine. (In addition, dioxin and other PBTs can be generated when polyvinyl chloride (PVC) is burned in trash incinerators, metal smelters or backyard burn barrels.

Consumers (including government purchasing agents) are largely unaware of the potential hazards of purchasing, using, disposing of and recycling PBT-containing items. Exposure to these long-lived and dangerous substances can occur throughout the product life-cycle. At risk are manufacturing workers, end-users of these products, anyone coming into contact with the waste stream, and people who are exposed after the PBT is released into the environment.

#### **Research and Outreach Methods**

Collaborating with government agencies, INFORM's *Purchasing for Pollution Prevention* project has methodically chosen PBT-containing products on which to focus, concentrating on those that

- cause the most environmental (and economic) harm;
- release PBTs into the environment in the greatest quantities; and
- are most likely to cause direct human exposure – particularly to children.

A growing number of states (such as Vermont, Washington, Massachusetts and California) and localities (e.g., Alameda County, CA and Seattle Washington) have adopted PBT reduction or environmentally preferable purchasing policies. Meanwhile, although governments are often *willing* to examine the environmental attributes of the products they purchase, they do not always have the *resources* to thoroughly investigate product toxicity and identify practical, less-toxic alternatives. INFORM has overcome this barrier by:

- Determining which products agencies are currently buying contain (or can generate) PBTs.
- Researching the availability, cost and performance of environmentally preferable alternatives.
- Recommending bid “specs” and contract language giving a preference to safer substitutes.
- Evaluating environmental claims submitted by vendors.

INFORM's has targeted this environmental purchasing initiative on eliminating the purchase of products containing (or generating) chemicals on EPA's list of 30 Waste Minimization Priority Chemicals. More information about how EPA developed this list is available at <http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm>.

INFORM chose to use this prioritized list of chemicals for four reasons:

- The US EPA is encouraging states and local governments to use this list to prioritize their own PBT reduction activities, so this project coordinates well with state and local government environmental priorities. EPA's goal is to reduce the presence of these PBTs in hazardous waste by 50 percent by 2005.
- The agency has focused attention on these chemicals because they all received high scores in *persistence*, *bioaccumulation* potential and human and/or ecological *toxicity*. As a result, PBTs have been documented to be a major problem in the environment, causing fish consumption advisories, environmental decline, and human health problems. According to the US EPA's *About PBTs Factsheet* (2000), "PBTs are associated with a range of adverse human health effects, including effects on the nervous system, reproductive and developmental problems, cancer and genetic impacts."<sup>iii</sup> (PBTs are especially threatening to children, who typically have less-developed immune systems than adults.)
- EPA established this list using a transparent ranking methodology that was adjusted several times based on public comment.
- Most of the chemicals on this list are still being used by or created by US manufacturers.

There are hundreds of products containing these 30 PBTs, and thousands of different public agencies that buy them. Because the potential scope of this project is so broad, research and outreach activities have focused primarily on those expected to yield measurable reductions the number of PBT-containing products bought by participating public agencies. The criteria for determining which PBT-containing products to focus on include the following:

- *Environmental Impact*: Has this chemical's presence in the environment resulted in fish consumption advisories, human health effects, or other widespread public health problems?
- *Availability of practical alternatives*: Are cost-effective alternatives that meet reasonable performance standards readily available?
- *Contract Schedule*: Are contracts coming up for rebid in the foreseeable future? These offer an immediate opportunity to incorporate new specifications for PBT-free products.
- *Procurement Environment*: Some contracts are easier to work with than others. Does the procurement officials assigned to it have time to consider these issues? Does the agency using these products have an interest in finding environmentally preferable substitutes? Contracts deemed "low-hanging fruit" have been prioritized. For example, concern about exposure to lead dust at police firing ranges has prompted some states (such as Wisconsin) to add lead-free ammunition to their contracts.

As products are researched, a variety of alternatives may be available. Recommended alternatives have been preferred in this order:

1. *PBT-free alternatives*. In most cases, unless it requires the purchase of new equipment or extensive training, a PBT-free alternative is the most preferable.
2. *Alternatives with lower PBT content*. In some cases, a PBT-free alternative is not available or is otherwise undesirable, but a product with lower PBT content is available.

Two other strategies have been employed to address PBT-containing products:

- *Recycling*. If no PBT-free alternative is available (for fluorescent lamps, computers, cell phones, or rechargeable batteries), "Return to Vendor" contract clauses have been employed

- that require vendors to participate in product “take-back” programs. (Massachusetts requires vendors of rechargeable batteries to participate in the Rechargeable Battery Recycling Corporation’s Charge Up to Recycle! Program.)
- *Right-to-know*. Some bid “specs” have required vendors to disclose the types and/or quantities of PBTs in the products they are offering on government contracts. (New Jersey now requires lighting vendors to disclose the mercury content of fluorescent lamps.)

## RESULTS AND DISCUSSION

PBT reductions from this project have occurred on four different levels:

- PBT reductions resulting from the replacement of products that contain (or generate, as in the case of dioxin, dibenzofuran and hexachlorobenzene) PBTs by *Project Partners* that incorporate PBT-free specifications into centralized contracts. (Erie County, New York, for example, pilot tested and ultimately specified only restroom deodorizers without para-dichlorobenzene, a persistent human carcinogen found in 13 percent of drinking water supplies and Great Lakes trout. The county estimates it has prevented approximately one ton of para-containing products from entering the environment.)
- PBT reductions resulting from purchases made by *other users of state contracts* through each state’s Cooperative Purchasing Program. (In compliance with Massachusetts’ Zero Mercury Strategy, the state has issued contracts for medical equipment, appliances, and thermostats that prevent vendors from selling mercury-containing products in cases where a mercury-free alternative is unavailable. These contracts can be used by thousands of end users such as local governments, quasi-state agencies such as authorities, and institutions such as public hospitals and universities.)
- PBT reductions that occur as a result of the project spurring *other states, localities, institutions and businesses that are not currently Project Partners* to follow suit.
- PBT reductions that occur as *manufacturers redesign their products* without PBTs, thereby influencing the products that individual consumers are buying. This will also result in PBT reductions at the manufacturing facilities as well. (INFORM collaborated with the Minnesota Office of Environmental Assistance and the State’s central purchasing office to incorporate mercury-free specifications into its 2002 vehicle bid. As a result of this effort, all vehicle purchased on the state contract will be mercury –free within three years. In response to this and other efforts of the Clean Car Campaign, General Motors informed the state of its plan to end its use of mercury light switches immediately, nearly a year ahead of schedule.)

Many resources are available to facilitate PBT-free purchasing. For more information, see [http://www.informinc.org/p3\\_00.php](http://www.informinc.org/p3_00.php).

<sup>1</sup> Culver. AA. (2003). INFORM Analysis of 2000 New Jersey Materials Accounting Data, Unpublished.

<sup>2</sup> New Jersey Department of Environmental Protection. (2000) Materials Accounting Data .

<sup>3</sup> US Environmental Protection Agency. (2000) “About PBTs: Factsheet.” Available at <http://www.epa.gov/pbt/fact.htm>.