

## Schools, Colleges and Universities

### Products Containing Persistent, Bioaccumulative Toxic Chemicals (PBTs)

INFORM, a nonprofit environmental research organization founded in 1974, is working directly with schools, government agencies, and health care facilities to minimize the purchase of products that contain mercury, lead, dioxin, and other persistent, bioaccumulative toxic chemicals (PBTs). Many products used by schools, colleges, and universities contain PBTs, or can generate or release PBTs into the environment when they are manufactured, used, discarded, incinerated, or recycled. Fortunately, environmentally preferable alternatives are often available (see table below). These products may not be unique to schools, but purchasers in educational facilities, research institutions, or agencies that deal with children typically purchase them in large quantities.

Product	PBT(s)	PBT-free Alternative
Chlorine-bleached paper and paper products	Dioxins, Polychlorinated dibenzofurans (PCDFs)	Chlorine used to bleach pulp during the papermaking process can produce toxic by-products such as chlorinated dioxins and furans. Paper products (such as copy paper, printing and writing paper, and tissues) that are unbleached or bleached in a chlorine-free process (using ozone, oxygen, and/or hydrogen peroxide) are available for many applications. Recycled paper products that are made without chlorine bleaching agents are labeled "processed chlorine-free (PCF)."
Computers, electronics	Antimony, Beryllium, Cadmium, Lead, Mercury	Although it is not currently possible to obtain computers that are free of PBTs, schools and universities can specify electronic equipment with reduced amounts of these metals. We also recommend that purchasers require vendors to take back used equipment or set up recycling contracts.
Diesel fuel used to power school buses, generators, and other equipment	Antimony, Arsenic, Beryllium, Cadmium, Cyanide, Dibutyl phthalate, Di(2-ethylhexyl) phthalate (DEHP), Dioxins, Lead, Mercury, Naphthalene, Nickel, Phenol, Polychlorinated dibenzofurans (PCDFs), Polycyclic aromatic hydrocarbons (PAHs), Selenium	Diesel exhaust contains all of the PBTs listed plus other cancer-causing substances.  Fourteen percent of school buses currently manufactured are powered by compressed natural gas (CNG), as are many transit and shuttle buses. Institutions that buy or lease buses should specify CNG. For more information on the advantages of CNG, see INFORM's <i>Bus Futures</i> report (2000).  For existing diesel buses and other diesel-powered equipment, consider adding biodiesel fuel.
Laboratory chemicals	Mercury	Many secondary and elementary schools have mercury in the science laboratory. Mercury and other PBTs do not need to be used in schools. Computer simulations and alternative experiments are available.
Prescription treatments for lice and scabies	Lindane	Lindane is a pesticide related to DDT. Less toxic, pyrethrin-based alternatives are available for head lice. Treatments for scabies containing permethrin, a synthetic pyrethrin, are available by prescription. Avoid products that contain piperyl butoxide (PBO), a synergist that makes pyrethrins and permethrin more toxic.

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Product	PBT(s)	PBT-free Alternative
<b>Printing inks and pigments</b>	Cadmium, Naphthalene, Polycyclic aromatic hydrocarbons (PAHs)	Petroleum-based inks contain PAHs and naphthalene. Water- and 100% vegetable-based inks do not contain these PBTs. Printers should also specify inks that do not contain heavy-metal pigments, such as cadmium.
<b>Vinyl toys and school supplies such as binders, paper clips, etc.</b>	Di(2-ethylhexyl) phthalate (DEHP), Dioxins	Most vinyl items, including soft plastic PVC (vinyl) toys sold in the US and found in kindergartens and preschools, contain DEHP softening agents. When incinerated, PVC may create dioxins and release them into the air. A wide variety of PVC-free toys and school supplies are available.

This information was collected from Material Safety Data Sheets (MSDSs) and from documents and databases developed by health and environmental regulatory agencies, independent analytical laboratories, and various industry and environmental groups. Purchasers should review product MSDSs and ask vendors to supply less toxic alternatives.

**Where can purchasers go for more information about INFORM's Purchasing for Pollution Prevention Project?** Contact INFORM staff:

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INFORM is a national nonprofit organization that identifies practical ways of living and doing business that are environmentally sustainable.

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