



Toxic ingredients, toxic smoke



Our burning homes are firefighters' work sites. The toxic chemicals that we have in our homes not only affect our health and the environment, but when they burn, they can also affect the long term health of firefighters.

The Labour Environmental Alliance Society (LEAS) is a Vancouver-based educational society that has brought together the occupational health and safety skills of leading unions with the research and campaign skills of environmentalists to create a new organization. Over the past six years, we have focussed our activity in dozens of worksites through the province, working with OH&S committees to get cleaning products that contain carcinogens and reproductive toxins out of the workplace and out of schools.

But the risks are not just on the worksite — they're also in our homes and communities. The Canadian Cancer Society estimates there will be a 60 per cent increase in the incidence of cancers across Canada over the next 20 years. That's in addition to the current statistics, which show that one out of every 2.7 women, and one out of 2.4 men have a lifetime probability of developing cancer. And that's not just the result of an aging population — those figures are age-standardized to take that into account.

Cancer is the second leading cause of death in children in Canada, and the incidence of childhood cancer has increased nearly 30 per cent since the 1970s. The incidence of acute lymphocytic leukemia in children is up 62 per cent, while childhood brain cancer is up 50 per cent since the 1970s.

According to the World Health Organization, 25 per cent of cancers are the result of environmental or occupational exposures. Birth defects are also rising, while male sperm counts have fallen significantly in developed countries. Both have been linked to chemical exposure, particularly to endocrine-disrupting chemicals that cause reproductive effects.

Those chemicals show up in dozens of common consumer products, including cleaners, home maintenance products, electronic products and household pesticides.

What are some of the chemicals we're exposed to? The list over the page is not intended to be comprehensive list, but highlights some of the most toxic substances in consumer products.

One out of every 2.7 women and one of 2.4 men can expect to develop cancer over the course of their lifetime.

— Canadian Cancer Statistics, 2004



CARCINOGENS

Formaldehyde

In June, 2004, formaldehyde was reclassified from a probable human carcinogen (IARC 2A) to a known human carcinogen (IARC 1) by the International Agency for Research on Cancer. It is released from such products as particleboard and some insulation materials and is used as an ingredient in products such as RV holding tank deodorizers. It is also produced as a combustion gas when many products — including HFC-based aerosol cans — are burnt. Formaldehyde is linked to nasal and throat cancer and leukemia.

Methylene chloride

Methylene chloride is sold and used widely as a household paint stripper, both as the generic product and in common hardware products such as Behr, The Stripper. IARC classifies it as a 2B carcinogen (possibly carcinogenic to humans), associated with lung, liver, breast and pancreatic cancer. It can also cause sterility in males at high concentrations. In a home workshop fire, methylene chloride acts as an accelerant and, like all chlorinated substances, produces dioxin, a potent carcinogen.

Paradichlorobenzene

Paradichlorobenzene, which IARC classifies as 2B, a possible human carcinogen, is the ingredient used in urinal blocks. But it is also used (as is naphthalene, another 2B carcinogen) in mothballs, which thousands of people use in their closets and wardrobes. A study completed in New York last year found a much higher risk of non-Hodgkin's lymphoma among women who had been using mothballs over an extended period of time. Paradichlorobenzene produces hydrochloric acid and poisonous phosgene gas (used as a chemical weapon during WW I) when it is burned.

Pesticides

Several carcinogenic pesticides, including tetrachlorvinphos in pet flea collars, chlorophenoxy herbicides and diuron in weed killers, dicofol in insecticides and captan in fungicides are routinely used in households and often in parks and golf courses. Last year, the Ontario College of Family Physicians completed a comprehensive review of studies on pesticide links with cancer. Their review confirmed the existing links between pesticide use and leukemia and non-Hodgkin's lymphoma and also showed associations with brain, prostate, kidney and pancreatic cancer. The study also linked birth defects, as well as higher rates of kidney cancer and leukemia among the children of those exposed occupationally to pesticides. There are numerous alternatives to toxic pesticides and many communities across Canada have convinced their municipal governments to ban the use of cosmetic pesticides.

Lindane

All the other organochlorine pesticides, including DDT, have been de-registered for consumer use in Canada, but lindane continues to be sold to consumers — as treatment for head lice. Lindane, which is readily absorbed through the skin, is an IARC 2B carcinogen, which is associated with an increase in brain cancer in children who have been treated with lindane for head lice. It is also persistent in the environment — one head lice treatment can pollute 23 million litres of water.

Toluene

Toluene, which is a developmental toxin that can affect the fetus, is an ingredient common to most spray paints as well as many paint removers and other products. It is listed as a reproductive and developmental toxin by California's Office of Environmental Health Hazard Assessment (Prop. 65).

2-butoxyethanol

2-butoxyethanol, also known as ethylene glycol butyl ether (EGBE), is a common ingredient in household rug cleaners and all-purpose spray cleaners. Long-term use can result in liver and kidney damage, and laboratory tests with animals have shown it to be teratogenic — capable of causing harm to the developing fetus.



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Toxic TVs and computers

Virtually all B.C. homes have at least one television, and computer use is rapidly reaching that same level, with many homes having more than one computer. With the exception of some equipment purchased very recently, all of that electronic equipment is housed in plastic compartments made with fire retardants containing the newest persistent toxin – polybrominated diphenyl ethers (PBDEs). PBDEs have also been used extensively in foam mattresses and couch cushions and while they have arguably saved lives from fires, they have created a toxic legacy.

PBDEs are both reproductive and developmental toxins that can reduce male sperm counts, cause developmental neurological damage in newborns and affect thyroid function even at extremely low doses. PBDE levels in North American women's breast milk is 5-10X the levels of women in Europe and those levels are doubling every five years. However, they have begun to fall in Sweden where PBDEs have been banned for many years, showing that regulatory action can be effective.

While initially retarding flame spread, PBDEs, under fire conditions, actually produce a denser, more toxic smoke than non-treated plastic, according to the Bolton Fire Laboratory in the UK. When burned, PBDEs produce highly toxic and carcinogenic polybrominated dibenzo-p-dioxins (PBDDs) and polybrominated dibenzo furans (PBDFs), posing a higher cancer risk for firefighters.

In Europe, regulators have moved to ban the import and use of PBDEs, with the final ban coming into effect in 2006. Some U.S. states have done the same, including Maine, where the legislation was fully supported by firefighters because of the danger posed by PBDEs in fires. In this country, Health Canada has not yet decided on a course of action yet, but consumer pressure for Ottawa to follow the lead of the European Union could make a difference.



MAKING A CHANGE

We can do something to reduce the risks. Just being aware of what we are exposed to is often the first step to action. Then there are practical steps we can take ourselves to choose safer products. Finally, there are steps in our communities to press for bylaws to curb pesticide use and for the federal government to move on better product labelling and regulations to curb the use of persistent toxins such as PBDEs.

Reducing firefighters' risk

The sorry fact of life is that firefighters get some cancers at higher rates because of their exposures to carcinogens and other toxins on their jobs.

Firefighters risk their lives and their long-term health to save us, our families and our homes from fire.

We owe it to ourselves and to firefighters to eliminate as many toxic chemicals as we can from our homes and communities.

And we should support firefighters and their families when firefighters face cancer. British Columbia should join with other provinces in Canada and other enlightened jurisdictions in declaring that certain cancers are occupational diseases for firefighters, and ensuring that firefighters get compensation and support when they develop cancer.

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