

NEW!
Expanded
edition

The CancerSmart Consumer Guide



How to eliminate toxins from
your home and garden products

How to make healthy choices
for your family and the environment



Introduction

Eliminate the exposure, reduce the risk

JUST TWO GENERATIONS AGO, cancer was a word hardly mentioned outside medical journals. And in those days, the environment and environmental issues weren't even part of the common vocabulary. The world has changed dramatically.

Today, cancer is a regular topic of conversation, a subject for talk shows and everyday news. Millions of people, their families touched by cancer, participate in fund-raising activities to raise money for cancer research. Much the same is true of environmental issues — thousands more people are aware of the need for action to protect the environment and many environmental organizations speak with an international voice.

What hasn't yet become an everyday issue is cancer prevention — and the close link that exists between our own health and the environment. That's what this booklet is about.

Chemical trespass

Over those same two generations, tens of thousands of new chemicals have come into use, in industry, in the workplace, in our homes. They've revolutionized industrial processes and changed the way we clean our homes.

But many of those chemicals have also brought with them a variety of toxic effects to human health and the

environment. Some have been shown to be carcinogens, substances that can cause cancer. Some have been shown to have toxic effects on reproduction, in humans and animals. Others may be endocrine disruptors, chemicals that affect the hormone producing organs of the body.

At first the evidence was only circumstantial, demonstrated in the cancer rates that began to rise sharply in the 1960s and 1970s. But now there is well-established science.

In 1965, the UN's World Health Organization established the International Agency for Research on Cancer (IARC) to study the causes and prevention of cancer around the world. In its nearly 40 years of existence, IARC has established an authoritative list of carcinogens, based on the findings of worldwide research. Since

Toxin or toxicant?

Information about toxic chemicals will sometimes refer to "toxins" and sometimes "toxicants," making it confusing for the average consumer.

The term generally used by scientists to describe a toxic chemical is "toxicant." However, for many years, environmental groups have referred to toxic chemicals as toxins and the term has been generally accepted in popular language with that meaning. For that reason, we've used toxin, rather than toxicant, throughout this booklet.

then, new agencies, such as the National Toxicology Program in the U.S., California's Office of Environmental Health Hazard Assessment as well as Health and Environment Canada, have also developed lists of toxic chemicals and their potential effects.

Those lists are a powerful tool that we can use to identify potentially toxic chemicals and then eliminate or at least reduce our exposure to them.

Carcinogens and cancer

Look at cigarette smoking, for example. It is very well established that if we get people to quit smoking, we can prevent thousands of new cases of lung cancer. The reason is simple: lighting a cigarette releases more than 50 known carcinogens into the air — and into the lungs of smokers. Eliminate exposure to those cigarette carcinogens and you can prevent many new cases of cancer.

Over the last five decades, there has been an unseen "chemical trespass" on our bodies, from thousands of chemicals used in industrial and household goods. In the U.S., the Environmental Working Group has done an inventory of the "body burden," charting the toxins that are showing up in our bodies. But we also see that where public action can reduce the use of toxic chemicals, our body burden can also be reduced.

Reproductive toxins

What about chemicals that affect reproduction, or childhood development? Lead, for example, is a carcinogen, but it is also widely known as a developmental toxin. It was the cause of problems in children before it was banned as a gasoline additive in 1986.

In fact, many of the chemicals listed by California's Office of Environmental Health Hazards Assessment as reproductive toxins are also carcinogens, such as benzene. It suggests that there is a link between chemicals that have an adverse effect on reproduction and cancer.

Children are often the most at risk because the effects of chemicals are often magnified in children whose bodies are still developing and changing. While the incidence of some cancers in adults is declining, for example, the rate for childhood cancers is rising. Cancer is now the second leading cause of death in children, after accidents. That's why reducing exposure for children is so important.



The prevention step

After years of research, the evidence is solid: eliminating exposure to carcinogens can be an effective method of primary cancer prevention. Eliminating exposure to reproductive and developmental toxins or endocrine-disrupters can help prevent many of the health effects associated with them.

Doesn't it make sense then, to do whatever we can to eliminate our exposure to those toxic chemicals in our homes and communities? We believe it does.

That's where this booklet will help. In the following pages, you'll find an explanation of the toxins that are of most concern, lists of products to avoid, and alternatives. There's also a section on food. We hope the information will help you make choices that are better for your health, the health of your children and the health of the environment.

Cancer facts

- In the 1930s, 1 in 10 Canadians could expect to develop cancer over their lifetime
- By the 1970s, the number had risen to 1 in 5
- Today, one in 2.4 Canadian men and 1 in 2.7 Canadian women can expect to develop cancer over their lifetime

— Cancer Statistics 2004, published by Health Canada and Canadian cancer agencies

The right to know

We realize that more is involved than just making choices. You need to know what's in the products you use. If you're working with industrial cleaning or other products in the workplace, health and safety regulations require that the potentially hazardous contents of those products be disclosed in a safety data sheet. Of course, workers have to assert their right to know, but they do have a legal right to know what they're being exposed to. There are no such labelling requirements for most household consumer products. Shouldn't people have the right to know what they're being exposed to in the products they buy? Again, we believe they should.

You can make a difference by avoiding products containing toxic ingredients. You can also multiply that effect many times over when you work with others in your community to press for better consumer product regulations that protect you and the environment.

Putting the lid on toxic pesticides

TAKE A WALK THROUGH ANY GARDEN store or the garden section of a home improvement centre in the summer and you'll inevitably see shelves and shelves of insect and weed killers. There's a product for virtually every pest problem householders might encounter, from black spot on roses to dandelion-infested lawns. Pet stores also offer an array of products for flea and tick control.

But neither the product manufacturers nor the stores offer much information on toxic ingredients.

Since 1995, pesticides have been regulated in Canada by the Pest Management Regulatory Agency (PMRA). Regulations require manufacturers to list the active ingredients on containers but the Agency does not require manufacturers to state the potential health or environmental effects of those active ingredients.

Recently, the PMRA began a process of re-evaluating pesticides that have been registered for years in Canada and amendments have also been made to the federal legislation, known as the Pest Control Products Act. The

changes are expected to reduce the risks of pesticide use, since some products and ingredients will be withdrawn from the market and the non-active ingredients — known in the industry as “formulants” — will now be taken into account in the re-evaluation process.

Pesticide product changes

Already in fact, some products have been removed from the market as a result of PMRA's re-evaluation. But many of the products that remain on the market and have been re-registered for Canadian consumers to use, contain as their active ingredients known or suspected carcinogens, endocrine disrupters and reproductive toxins.

The following pages contain a list of the carcinogens, reproductive toxins and endocrine disrupters that are active ingredients in some of the commonly-used household pesticides and herbicides.

There are a few changes since the previous edition of the Guide: the herbicide diuron and the fungicide maneb are no longer on the list because they have been de-registered for domestic product use in Canada. The insecticide methoxychlor is also off the list because its registration will end Dec. 31, 2005 and products containing methoxychlor cannot be used after that date.

The insecticide permethrin, which is used in numerous domestic products, has been added to the list as an endocrine-disrupting chemical.

Before you reach for a pesticide product, however, consider the alternatives listed in the table. Whenever you can, look for non-toxic solutions. The Resources section in the back of this booklet also provides some links for additional information.

The health and environmental effects of pesticides is more than just a consumer issue — it's also a community issue as hundreds of thousands of people in communities across Canada have shown.

Municipal campaigns

In 1991, municipal councillors in the community of Hudson, Quebec adopted a bylaw restricting the use of cosmetic pesticides in the municipality. The bylaw was challenged by pesticide spraying companies, launching what was to become a 10 year-long journey through the courts. Finally, in 2001, the Supreme Court of Canada upheld the right of Hudson — and other municipalities across Canada — to enact pesticide bylaws governing land within the municipality.

International agencies moving towards disclosure of hazards

Canadian workers and consumers have been asking for full disclosure of all toxic ingredients in pesticides for years.

After extensive consultations sponsored by the United Nations Environmental Program (UNEP), the UN's International Labour Organization (ILO), and the Organization for Economic Cooperation and Development (OECD), the international community (including Canada) has agreed to expanded right-to-know recommendations put forward by the international bodies. They will require full disclosure of all hazardous ingredients in both pesticides and other consumer products. Canadians should insist that Canada implement the full scope and intent of this agreement.

In response to these international discussions, Canada's PMRA has also agreed to improve its disclosure rules for workplace use of pesticides. The Workplace Hazardous Materials Information System (WHMIS) regulations, from which pesticides were initially exempted, will now be extended to include pesticides used in the workplace.

Consumers should have the same right to know what ingredients and hazards may be in the products they are purchasing.

Municipal action expanding

Since then, 69 municipalities across the country have already adopted or are working towards adoption of bylaws that will restrict the use of toxic pesticides on lawns or gardens, to protect community health, especially the health of children. A number of public health organizations support the bylaw initiatives, including the Canadian Cancer Society and the Canadian Association of Physicians for the Environment.

At the heart of the initiatives is the precautionary approach. “The health effects and potential risks from exposure to pesticides may never be completely understood. Different interpretations have emerged from a consideration of the totality of the evidence,” Toronto Medical Health Officer Dr. Sheila Basrur wrote in a detailed report in 2002. “It is the judgement of Toronto Public Health that

a precautionary approach concerning residential-use pesticides is prudent and advisable.”

Various community and environmental groups across the country are working to raise public awareness of the issue and to urge their own councils to adopt similar bylaws. Consider working with a group in your community to learn more about the impact of pesticides and to help protect the health of your community and the environment.



What about Roundup?

Glyphosate, the active ingredient in the herbicides Roundup and Rodeo, doesn't make it to the list below, but the toxicity of the commercial products containing glyphosate has been noted in a number of studies.

A 1997 study of Ontario farmers found an increased rate of premature birth and miscarriages among families that had used glyphosate. Glyphosate herbicides are also toxic to fish.

A study by the U.S. Dept. of Agriculture found that surfactants used in preparations such as Roundup added substantially to the toxicity of the product.

| ACTIVE INGREDIENT | TOXIC CLASS | PRODUCTS * | ALTERNATIVES |
|--|--|---|--|
| WEED CONTROL | | | |
| Amitrole (herbicide) | Carcinogen (IARC; P65-C) | Three products, including: <ul style="list-style-type: none"> • C-I-L Steril Vegetation Killer • Later's Calcide Liquid Vegetation Killer | Boiling water will control weeds on hard surfaces. Alternative products include Eco Clear Weed Control (with acetic acid), soap-based herbicides and weed oils. |
| Atrazine (herbicide) | Endocrine disrupter (EU-EDC; EPA-EDC) | One product: <ul style="list-style-type: none"> • Atra Pell herbicide | See above. |
| Phenoxy herbicides (2,4-D, mecoprop, MCPA) | Carcinogen (2,4-D) (IARC) Endocrine disrupter (2,4-D) (EPA-EDC) | 40 products, including <ul style="list-style-type: none"> • Later's Creeping Buttercup Weed Killer • Killlex products • Wilson and C-I-L Weed Out products • Later's Weed Stop lawn weed killer | Manual removal of dandelions and other broadleaf weeds using a dandelion puller or similar tool is the most effective method. Alternative weed control products include Eco Clear Weed Control (with acetic acid) and corn gluten-based weed control products, such as Turf-Maize. Corn gluten is also available as generic product. |
| Trifluralin (weed removal in gardens) | Carcinogen (EPA-C) Endocrine disrupter (EU-EDC; EPA-EDC) | One product: <ul style="list-style-type: none"> • Miracle-Gro Garden Weed Preventer | Try Eco Clear Weed Control (with acetic acid). |

Guide to references:

IARC: International Agency for Research on Cancer. IARC pesticides noted here are Group 2B (possibly carcinogenic to humans).

P65-C: California's Proposition 65 inventory of carcinogens, listed as substances "known to the state to cause cancer."

P65-R: California's Proposition 65 reproductive toxins, listed as "substances known to the state to cause reproductive toxicity."

EPA-C: The U.S. Environmental Protection Agency's list of carcinogens.

EU-EDC: The European Union's priority list of Endocrine-Disrupting Chemicals, including known categories 1 and 2.

EPA-EDC: The U.S. Environmental Protection Agency's list of known Endocrine-Disrupting Chemicals.

* Based on PMRA's list of registered domestic products at time of publication.

Section 4

Personal care products

Shampoos, soaps, cosmetics, fragrances — probably nothing is more closely connected to human health than the personal care products that we use all the time. According to consumer statistics, the average adult uses nine products per day. But do we know what's in them?

After years of waiting, consumers in Canada will finally see mandatory ingredient labelling on cosmetic products as a result of new Health Canada regulations formally announced in late 2004. Most products, including lipstick, shampoos, makeup, hair colouring and fragrances will be covered, although the regulations will not include products such as toothpaste and sunscreens, which are considered drug products. Nor will it include natural health products. Companies will be required to be in full compliance with the regulations by July, 2006, and some are expected to begin labelling sooner.

The labelling is only a first step and still leaves Canada behind the European Union, where new regulations that came into effect in 2004 will bar companies from including any ingredient listed by the EU as a car-

cinogen or reproductive toxins in their cosmetic products. But soon, Canadian consumers will at least be able to see some of the ingredients to avoid.

Benzyl violet

Used as a colouring in various products, including nail treatments, benzyl violet is listed under California's Proposition 65 as a substance "known to the state to cause cancer." It is a possible human carcinogen, according to the International Agency for Research on Cancer (IARC 2B). When it appears on U.S. and European labels, it is frequently listed as Violet 2 or Violet 6B.

Formaldehyde

Formaldehyde, which is sometimes used in cosmetic products as a preservative, was recently re-classified by the

International Agency for Research on Cancer to its highest toxic class, IARC 1 (known human carcinogen). It is sometimes listed on labels as formalin or methyl aldehyde. Nail hardeners, particularly, may contain as much as 10 per cent formaldehyde. In some cases, ingredients are formaldehyde-releasing, including Quaternium-15 and diazolidinyl urea.



Cocamide diethanolamine

Cocamide diethanolamine, often listed as cocamide DEA, is used in numerous products, including shampoos, lotions and creams as a skin softener and thickener. It is readily absorbed through the skin.

In 1998, the National Toxicology Program in the U.S. published the results of a two-year study with mice and rats that showed liver tumours among mice dosed with a topical skin application of cocamide DEA. Since then, the U.S. Environmental Protection Agency's Office of Pesticide Programs has listed it as a substance that is "likely to cause cancer in humans."



The NTP study also examined diethanolamine alone in the course of the study and reported that it evoked "the strongest carcinogenic response" of all the diethanolamine-based substances tested. However diethanolamine has not yet been included on the NTP's carcinogens list.

Under European regulations, diethanolamine is permitted in cosmetics only at concentrations of one per cent or below. There are no comparable U.S. or Canadian regulations, although the U.S. industry advisory group, the Cosmetics Toiletry and Fragrance Association, recommends its own limit — which, at five per cent, is five times as high as the EU's.

Coal tar derivatives

Most of the hair colourings sold today are known as permanent because they are used in conjunction with a bleaching agent (usually hydrogen peroxide) to ensure that the entire hair shaft is coloured. Although they are less toxic than they were before 1980, most dark permanent hair colourings still use coal tar derivatives as their dye base. Coal tar is a known human carcinogen and some of the substances derived from it that are used in hair colourings have been linked to bladder cancer and non-Hodgkin's lymphoma.

A 2001 California study published in the *International Journal of Cancer* found that women who used permanent hair dyes once a month were twice as likely to develop bladder cancer. The study also found

that longer term use of the hair dyes increased the risk, especially for hair dressers, who were five times as likely to develop bladder cancer after working for 10 years or more.

Much of the attention has been focused on two ingredients commonly found in hair colouring products (including products for men, such as Just for Men), paraphenylenediamine and tetrahydro-6-nitroquinoxaline. They have been targeted in the EU for possible regulatory action since they have been shown to damage genetic material. Another product for men, Grecian Formula 16, contains lead acetate, listed under Proposition 65 as a carcinogen and reproductive toxin.

But there may be other factors — studies in the U.S. have suggested that the chemical reactions created by hair colouring products, or a common contaminant known as 4-ABP, may be having a carcinogenic effect. Most researchers suggest avoiding dark hair dyes entirely or choosing products made with natural ingredients. Aveda has a line of non-coal tar based hair colourings.

Assessing the evidence

'In women, use of permanent and rinse-type hair dye were associated with a modestly elevated risk of bladder cancer...In light of the prevalence of hair dye use, further studies are needed that address the effects of specific colors and types of hair dyes.'

— Andrew AS, Schned AR, Heaney JA, Mott LA and Karagas MR. *Bladder Cancer Risk and Personal Hair Dye Use. International Journal of Cancer* 109(4): 581-586. 2004

Parabens

Parabens is the group name given to various preservatives used in many cosmetic products and sunscreens. Easily absorbed through the skin, they are endocrine disruptors and since they can bind to estrogen receptors in women, they could potentially affect estrogen-sensitive functions of the body. Scientists have urged further research into their possible role in the development of cancer following a 2004 study by British researcher Dr. Philippa Darbre, who found parabens in the tumours of breast cancer patients she studied.

Parabens are identified on ingredient labels by their individual name, such as methyl paraben, butyl paraben and propyl paraben. Buying parabens-free products is difficult, however, since parabens are used extensively, even by some natural product manufacturers.

PBDEs: invisible chemical trespass

With the new popularity of personal computers and smaller plastic televisions in the 1980s, it became increasingly important to add fire retardant chemicals to the plastics to make them less flammable. Enter the polybrominated fire retardants, a new class of chemicals with potential applications in polyurethane foam furniture, mattresses and plastic enclosures for computers, televisions and other electronic goods. The most common are polybrominated diphenyl ethers (PBDEs).

Over the last 20 years, the chemicals have arguably prevented many fires. But those benefits are now outweighed by the toxic legacy PBDEs are leaving.

The chemicals are usually added to plastics for fire retardancy, and because they don't bind to the plastics, they can migrate into the environment, either as dust from foams and computer housings, or as leachate from those materials after they're dumped into landfills.

Persistent toxins

PBDEs are persistent and bioaccumulative in the environment. They have been found in orcas in the Pacific Northwest and in the breast milk of women from Europe to Japan to the Pacific Northwest and the Arctic. The levels of PBDEs in Canadian women are among the highest in the world, second only to those in the U.S. In most countries, the levels of PBDEs in women's breast milk have been doubling every five years — with one promising exception. In Sweden, where PBDEs have been banned since the 1990s, those levels have begun to decline, clearly demonstrating the benefits of regulatory action.

A growing number of experimental studies with ani-

mals have linked PBDEs to a variety of health effects, particularly endocrine disruption, often at levels comparable to those found in women's breast milk. PBDEs may cause permanent memory and immune system impairment and they can interfere with thyroid function, which is key to many other functions in the body. Because of their persistence in the environment, there is a high risk to wildlife, including marine mammals, just as there has been with PCBs, which have now been banned from manufacture.

According to Ake Bergman, a Stockholm University researcher who has studied them extensively, "we know more about PBDEs than we knew about PCBs at the time they were banned in the 1970s."

Alternatives available

A variety of chemical alternatives that do not contain bromine or chlorine are available to replace PBDEs, along with alternative materials and manufacturing processes.

As it has done with other potentially toxic substances, the European Union has been the first to act to restrict PBDEs. In August, 2004, the EU banned the manufacture and use of two major commercial groups of PBDEs, known as penta-BDEs and octa-BDEs. A third group, known as deca-BDEs, which are still widely used in electronics applications, will be targeted in 2006.

Several U.S. states, including Maine, California, Hawaii and Washington, have also introduced bans on PBDEs, beginning in 2006. So far, however, Canada has declined to take action. Health Canada contends: "There have not been any studies conclusively linking PBDE levels in humans to any health conditions."

PBDE-FREE PRODUCTS

| CATEGORY | PRODUCTS |
|------------------------|---|
| Upholstered furniture | Products manufactured in Canada |
| Mattresses | Products manufactured in Canada |
| Computers, peripherals | Apple, Brother, Epson, IBM, Toshiba products are PBDE-free; HP printers are PBDE-free; Dell, HP, Sony have pledged to remove PBDEs from computers by 2006 |
| Cell phones | Ericsson, Motorola, Panasonic (including fax machines and regular phones) |



JOANNE HUEMOELLER PHOTO

Research led by Dr. Peter Ross from the Institute of Ocean Sciences in Sidney, B.C. found significant levels of PBDEs in transient and resident populations of Northwest orcas. Those levels are increasing exponentially.

Scientists urge precaution

But many scientists warn that waiting for conclusive evidence is not precautionary and poses the risk of the same environmental disaster that finally forced the ban on PCBs.

Because there are currently no Canadian regulations restricting the use of PBDEs, some furniture products and many televisions and computer monitors sold in Canada may contain PBDEs. Fortunately, Canadian manufacturers of furniture and mattresses are not required to use fire retardant foam in their products and most upholstered furniture and mattresses made in Canada are free of fire retardant chemicals. However, products manufactured outside the country may contain PBDEs or other fire retardants.

Canadian foam manufacturers had been using PBDEs in their products until about five years ago when Swedish furniture giant IKEA made the laudable decision to eliminate PBDEs from its products and instructed suppliers to provide PBDE-free materials. However, manufacturers replaced PBDEs with chlorinated phosphate esters (TCEP), another potentially toxic substance currently facing restriction in the EU. Because upholstered foam products made for IKEA in Canada are also shipped to the U.S., where fire retardant treatment is required, they're all treated with TCEP. As a result, Canadian customers at IKEA get a fire retardant that isn't necessary.

Steps you can take to avoid PBDEs:

- Ask stores whether the item you are considering buying contains PBDEs. It makes retailers aware of the issue and pushes manufacturers to make the information available
- Look for natural products in furniture cushions, such as wool or cotton fill. Wool, for example, is naturally fire-retardant. Ensure that the upholstered furniture you buy is made in Canada.
- When buying electronic products, such as televisions, monitors and computers, check the list. Buy products from companies that have dropped PBDEs.

Adding to firefighters' cancer risk

With the growing number of televisions and computers in people's homes, the use of PBDE fire retardants poses a higher risk, not just to residents, but also to the people who may be called upon to save our lives — firefighters.

While initially retarding flame spread, PBDE-treated plastics, under fire conditions, actually produce a denser, more toxic smoke than non-treated plastic. And as they burn, PBDEs produce highly toxic and carcinogenic polybrominated dibenzo-p-dioxins (PBDDs) and polybrominated dibenzofurans (PBDFs), increasing the cancer danger for firefighters.

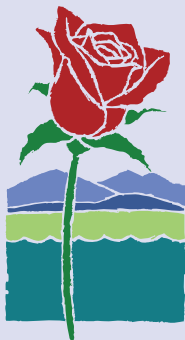
That's why firefighters in Maine supported the legislation initiative introduced last year to phase out the use of penta- and octa-BDEs by 2006 and deca-BDEs by 2008.

Firefighters in New York also supported legislation restricting the use of toxic polyvinyl chloride (PVC) pipe in the state. When PVC burns, it produces dioxins as well as toxic hydrogen chloride gas, which can spread faster than flames and can be lethal.

Firefighters already face an elevated risk of several cancers, including brain cancer, non-Hodgkin's lymphoma, leukemia, kidney and bladder cancer from their exposure to toxic smoke and combustion gases. Most provinces have recognized the increased risk in workers' compensation regulations but not in British Columbia, where firefighters are still working to win the right to compensation.

Wherever they are, our burning homes are firefighters' workplaces. Eliminating toxins from our homes and communities can reduce our risk — and theirs.

Revitalizing jobs and the environment through social justice



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