



## Healthy House Guide

***Prevention and Action against Cancer and Toxicants*** is a project that focuses on the risks of environmental chemical exposures in the home and how they may be linked to cancer and other adverse health effects. The Healthy House Guide aims to be a comprehensive guide to provide information on the sources of chemical exposures in the home, provide practical tips and safer alternatives for reducing those exposures, and resources for more information.

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## Living Room

	Hazards	Alternatives
<b>Indoor Air and dust</b>		
<b>Dust</b>	Often contains phthalates, flame-retardants, heavy metals and other chemicals that originate from indoor and outdoor sources.	<p>\$ Dust and vacuum often, use a wet cloth instead of dry-dusting to trap dust.</p> <p>\$ Remove shoes before entering the house to avoid bringing in outdoor pollutants.</p> <p>\$\$-\$\$ Use house-plants that can naturally purify the air. Try philodendrons, Boston ferns, peace lilies and English ivy. For optimum results, use 2-3 plants per 100 square feet of room space.</p> <p>\$\$ Use a high-efficiency particulate air (HEPA) filter vacuum cleaner or install a central vacuuming system to reduce indoor dust.</p>
<b>Furniture</b>		
<b>Furniture with foam stuffing</b>	Interior stuffing often contain brominated flame-retardants (BFR). Outside fabrics can be treated with stain-repellents. It can also trap dust.	<p>\$ Dust, vacuum and/or wash fabrics often.</p> <p>\$\$-\$\$ Replace any furniture that is decaying, crumbling or has exposed foam.</p> <p>\$\$ Opt for furniture made of natural fabrics, like wool and cotton which are naturally fire-retardant.</p>
<b>Solid furniture</b>	Often have toxic finish and contains glues, which can release formaldehyde and other Volatile Organic Compounds (VOCs)	<p>\$ Try to avoid furniture made of particleboard, fibreboard and plywood or let them air out for a few days before putting them in your home.</p> <p>\$\$ Opt for metal or furniture made of solid wood (choose wood with non-toxic manufacturing process and from sustainable sources, preferably)</p>
<b>Flooring</b>		
<b>Carpets</b>	New carpets can off-gas VOCs like formaldehyde and contain BFRs; over time carpets collect dust.	<p>\$ Air out new carpet before installing. Vacuum, clean/ dust frequently (every week at least)</p> <p>\$\$ Look for low-emission carpets or carpets made of natural fibres (e.g. wool, cotton, rattan and jute).</p>
<b>Vinyl tiles</b>	Made from PVC which contains phthalates and can off-gas VOCs.	<p>\$\$ Opt for hardwood floors (choose wood with non-toxic manufacturing process and from sustainable sources, preferably) or tiles made of ceramic, marble or cork.</p>
<b>Window Coverings</b>		
<b>Curtains</b>	Collects dust and can be treated with stain repellants.	<p>\$ Wash or vacuum frequently</p> <p>\$\$ Opt for curtains made of natural fabrics.</p>
<b>PVC blinds</b>	Can contain phthalates can off-gas VOCs.	<p>\$ Clean/dust frequently.</p> <p>\$ Avoid PVC blinds if possible, or air out new blinds before using.</p> <p>\$\$ Opt for easy-to-dust blinds or shutters made of natural materials like wood or bamboo.</p>
<b>Paint</b>		
<b>Paint</b>	Older homes (built before 1976) can contain lead paint. New paints contain organic solvents that release VOCs and other toxic fumes into the air.	<p>\$\$-\$\$ Test your house for lead (especially if paint is old and chipping). If you do have lead paint, do not remove it yourself.</p> <p>\$ Air out the room during and after painting and wear proper protective masks while painting.</p> <p>\$ Stay with family or friends during renovations if you're pregnant or are sensitive to paint fumes.</p> <p>\$\$ Opt for water-based paints with no or low solvent (labelled low-odour paints).</p>
<b>Electronics</b>		
	Can contain PVC, phthalates BFRs and heavy metals. When they heat up, these compounds are released and settle into	<p>\$ Dust often with a wet cloth</p> <p>\$ Dispose of electronics safely (recycle or donate) to prevent contaminants in landfills.</p> <p>\$\$-\$\$ Research electronic companies before buying. Many companies</p>

	house dust.	have started to phase out PVC and flame-retardants. Consult their website.
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## Kitchen

	Hazards	Alternatives
<b>Food and Drink</b>		
<b>Produce</b>	Pesticide residues.	<p>\$ Vary the fruits &amp; vegetables you eat. This will limit the amount of pesticides ingested.</p> <p>\$\$ Eat organic as much as possible. Consult EWG's Dirty Dozen guide to see which produce have the highest and lowest amounts of pesticide residues.</p>
<b>Canned food</b>	Most aluminium cans are lined with BPA, which can leach into foods.	<p>\$ Choose fresh, frozen or dried foods, as much as possible (do not heat frozen food in the plastic bag in which it comes, even if it says microwaveable).</p> <p>\$\$ Look for foods in glass or other alternative packaging methods.</p> <p>\$\$\$ Choose foods in BPA-free cans (to date only Eden Foods makes BPA-free cans)</p>
<b>Water</b>	Drinking water is disinfected with chlorine and may have traces of other substances like lead.	<p>\$\$ If you live in an older home (built before 1950), have your water tested for lead.</p> <p>\$ Only use cold water for drinking or cooking to minimize the amount of lead that can leach into water.</p> <p>\$ Avoid bottled water as much as possible as it is not regulated the way tap water is. Use BPA-free or stainless steel bottles instead.</p> <p>\$\$\$ Filter your tap water system with a carbon filter (change filters regularly) or use a reverse osmosis system for both drinking and cooking.</p>
<b>Cookware and storage containers</b>		
<b>Non-stick cookware</b>	When heated to high temperatures, Teflon coated non-stick cookware can release a toxic chemical into the air.	<p>\$ If using a non-stick, cook on low to medium heat and avoid scratching the cookware.</p> <p>\$ Use an exhaust fan or open a window while cooking to let out gas, smoke and humidity.</p> <p>\$\$ Opt for cast iron, ceramic, glass or silicone cookware instead (stainless steel is a less costly option, but can contain nickel, which some people may be allergic too).</p>
<b>Plastic containers</b>	The plastic containers used for storing food, along with plastic water bottles can contain phthalates and BPA that can leach into food when heated or worn.	<p>\$ Reheat food on a plate or in a bowl, rather than in a plastic container and always hand wash instead of putting them in the dishwasher (even if they are microwavable and dishwasher safe).</p> <p>\$ Recycle when they become scratched or worn</p> <p>\$\$\$ Choose plastics types 2,4,5 (2,4,5 - <i>keep yourself alive</i>), which are safer.</p> <p>\$\$ Use glass (e.g. Pyrex) or ceramic containers instead. Stainless steel is another option (for those without a nickel allergy).</p>
<b>Cleaning products</b>		
<b>Cleaning products</b>	Cleaning products contain many toxic chemicals that are not listed on the label.	<p>\$ Make your own products from just a few simple ingredients such as lemon juice, baking soda and vinegar. [Consult our cleaning products guide for recipes]</p> <p>\$\$ Use safer options that are available on the market, but beware of greenwashing.</p>

## Bathroom

	Hazards	Alternatives
<b>Personal hygiene products</b>		
<b>Cosmetics and personal care products</b>	Many toxic ingredients including those found on BCAM's Toxic Twenty list.	<p>\$ Learn to make your own products from scratch*</p> <p>\$ Choose to use fewer products.</p> <p>\$\$ Choose safer products that do not contain the ingredients found on the BCAM's Toxic Twenty list or consult the Skindeep website.</p>
<b>Antibacterial soaps and products</b>	Contain triclosan.	<p>\$ Simply avoid any antibacterial products as there is no evidence that triclosan is more effective at killing germs than regular soap and water.</p> <p>\$ If no soap and water is available, opt for an alcohol-based hand-sanitizer, instead.</p>
<b>Feminine hygiene Products</b>	Feminine hygiene products may contain plastics and be treated with pesticides.	<p>\$-\$\$ Use reusable pads or a menstrual cup (cheaper in the long run)</p> <p>\$\$ Use organic cotton and/or unbleached sanitary products and avoid tampons with plastic applicators.</p>
<b>Indoor air and mold</b>		
<b>Air fresheners</b>	Most air fresheners contain numerous toxic chemicals, like VOCs and only mask odours.	<p>\$ Eliminate the source of bad odours (e.g. garbage, rotting food, mildew, etc.)</p> <p>\$ Open a window or turn on a fan to let fresh air in.</p> <p>\$ Neutralize odours with baking soda or vinegar (put a bowl of baking soda in the room, sprinkle baking soda on carpets or upholstered furniture, dilute some vinegar in water and put in a spray bottle - the smell of vinegar will quickly dissipate).</p> <p>\$-\$\$ To add a sweeter smell to your home, use natural solutions such as using pure essential oils, citrus fruits and spices (e.g. simmer some orange peels with cinnamon and cloves in a pot), or burning natural beeswax candles.</p>
<b>Mold</b>	Mold and mildew can be very toxic and can make people sick.	<p>\$ Prevent mold. Make sure the room is well-ventilated by using a fan or opening the window to prevent the build-up of moisture and humidity. Wipe excess moisture from walls and tiles after bathing by using a dry cloth.</p> <p>\$-\$\$ Use non-toxic cleaning solutions such as vinegar (with or without baking soda) or hydrogen peroxide or non-toxic cleaners available on the market.</p>
<b>Miscellaneous</b>		
<b>Shower curtain</b>	Most shower curtains are made of PVC, which contain phthalates and releases VOCs into the air.	<p>\$ If using a PVC vinyl shower curtain, air out before installing. Or opt for non-PVC vinyl made from PEVA or EVA (these are less toxic for health but still bad for the environment as they are made from petrochemicals).</p> <p>\$ Better non-pricey options include polyester or nylon, which are machine-washable.</p> <p>\$\$ Organic cotton or hemp are the best options for the environment as they are naturally water-repellant and mildew-resistant</p> <p>\$\$ If renovating your bathroom, consider installing a glass sliding door (can be cheaper in the long run).</p>
<b>Toilet paper (and other paper products)</b>	Can be bleached with chlorine.	<p>\$\$ Choose chlorine-free toilet paper: look for products labelled totally chlorine-free (TCF) or processed chlorine-free (PCF). Choose products made of recycled content, preferably.</p>

## Nursery and Child's room

	Hazards	Alternatives
<b>Baby products</b>		
<b>Baby bottles</b>	BPA was banned in baby bottles in Canada in 2008, but plastic bottles may still contain phthalates.	<p>\$ If possible, breastfeeding is the best option</p> <p>\$ Ensure plastic bottles are BPA-free if using second-hand or if they were purchased outside of Canada.</p> <p>\$ Do not heat liquids in the bottle: heat separately and transfer to bottle once cooled.</p> <p>\$-\$\$ Choose plastics types 2,4,5 or tempered glass bottles instead.</p>
<b>Diapers</b>	Disposable diapers can contain dyes and can be treated with pesticides	<p>\$-\$\$ Use re-usable cloth diapers (flushable linings make clean-up easier)</p> <p>\$\$ Buy organic, untreated cotton diapers.</p>
<b>Other (e.g. car seats, strollers, high chairs, etc)</b>	Can contain BFRs, phthalates, and heavy metals	<p>\$ Air out new products before using them and clean them regularly.</p> <p>\$-\$\$ Consult <a href="http://healthystuff.org">healthystuff.org</a> for product rating and safer options.</p>
<b>Personal care products</b>		
	Personal care products for children contain all of the same toxic ingredients as products for adults.	<p>\$ Learn to make your own products from scratch*</p> <p>\$ Use fewer products</p> <p>\$\$ Choose safer products that do not contain the ingredients found on the BCAM's Toxic Twenty list or consult the Skindeep website.</p>
<b>Furniture</b>		
<b>Furniture</b>	See living room	See living room
<b>Mattress</b>	Plastic covering on the mattress is often made of vinyl, thus containing phthalates. Interior may contain BFRs.	<p>\$ If using a synthetic mattress, let it air out and then cover it with a wool mattress pad.</p> <p>\$\$ Choose an organic wool or cotton mattress, as they are naturally fire resistant.</p>
<b>Toys</b>		
<b>Teethers and pacifiers</b>	Teethers can be made of PVC (which may contain phthalates) or polycarbonate plastic (which can contain BPA). Pacifiers may be made with latex or rubber, which can contain harmful chemicals.	<p>\$ A clean frozen washcloth (dipped in water or apple juice) can make a good teething option.</p> <p>\$\$ Opt for teethers and pacifiers made of natural, unprocessed rubber or clear silicone, or made of natural materials like wood, organic cotton and wool (avoid PVC, latex and polycarbonate plastic).</p>
<b>Soft toys</b>	Soft toys can trap dust and may also have a fire retardant coating.	<p>\$ Wash or vacuum soft toys periodically.</p> <p>\$\$ Choose toys made of natural fibres like organic cotton or wool.</p>
<b>Other toys</b>	Toys can be painted with paints containing heavy metals. Plastic toys can contain phthalates and BPA.	\$-\$\$ Choose toys made of plastic 2,4,5 or made of wood (without toxic varnishes or paints).
<b>Clothes and other fabrics</b>		
	Baby's skin is more sensitive and more easily absorbs chemicals.	<p>\$ Wash all fabrics before using with fragrance-free and dye-free laundry detergent.</p> <p>\$\$ Opt for natural fibres and organic materials like cotton and bamboo.</p>

## Garage/Outdoors

	Hazards	Alternatives
<b>Cars</b>		
<b>Car interior</b>	Same as furniture: phthalates, BFRs, and heavy metals	\$-\$\$ Consult healthystuff.org guide to new vehicles if purchasing a new vehicle.
<b>Car exhaust (air pollution)</b>	Car exhaust contains VOCs and numerous toxic substances linked to cancer and breathing problems	\$ Drive less often - use public transit, bike, or walk. \$ Avoid idling your car - it will save you fuel and reduce air pollution \$\$ Consider driving a low-emission vehicle (hybrid or electric)
<b>Gardening and pest control</b>		
<b>Gardening</b>	Pesticides and many toxic chemicals	\$ Use natural methods: spray weeds with vinegar or pour boiling water to kill weeds; corn gluten can suppress common turf weeds; mulch can also keep down weeds. \$ For insects, spray plants with soap/water mixture to keep them away. \$\$ Find safer and natural options on the market
<b>Pest control in home (rodents, insects, mold)</b>	Pesticides and many toxic chemicals	\$ Prevent pests - keep things clean (remove all food residues), keep food covered, remove sources of standing water, keep garbage cans closed (animal-proof), block entry of pests into home (seal all cracks/holes) \$\$ Find safer and natural options on the market
<b>Insect-repellant</b>	DEET and other chemicals	\$ Avoid being outdoors at dawn or dusk. Wear light-coloured clothing with long sleeves and long pants to prevent being bitten. \$-\$\$ Try safer and natural (DEET-free) options e.g. citronella, neem, lemon and eucalyptus oil (do not consume, only apply on skin) or soybean oil.
<b>Sunscreens</b>		
	Oxybenzone, retinyl palmitate and other compounds from the Toxic Twenty list	\$ Limit sun exposure: wear protective clothing (hat, long-sleeves) and stay in the shade. \$\$ Mineral sunscreens that uses zinc or titanium dioxide (Avoid ingredients in the toxic twenty)
<b>Waste disposal</b>		
	Toxic chemicals can contaminate landfills, which in turn contaminates our air, water and food.	Reduce waste to landfills by practicing the 3 R's (Reduce, Reuse and Recycle) and dispose of waste properly, esp. hazardous waste.

## Glossary

### Bioaccumulation

Bioaccumulation is the increase in concentration of a substance in the tissues of a living organism (including humans) throughout its lifetime. Bioaccumulation occurs when a substance is metabolized (and excreted) slower than the rate at which it is absorbed, which results in the build up of the substance in the body.

### Bisphenol A (BPA)

BPA is used in the production of polycarbonate plastics (#7 plastic) and resins. We are primarily exposed through food and drink as it can be found in food and drink packaging, water bottles, and the inner



coating of food cans. It is also found in other items like compact discs and cash register receipts . BPA is a known endocrine disruptor as it can mimic estrogen and it has been linked to breast cancer and other cancers, as well as other problems like obesity and reproductive issues.

### **Brominated Flame-Retardants (BFR)**

Flame retardants are man-made chemicals added to a wide variety of products to make them less likely to catch fire. They are added to plastics, electronics, upholstered furniture, non-clothing textiles (e.g. carpets, curtains, etc.) and foam products (e.g. mattresses). Because they are added to products rather than chemically bound into them, they can be slowly and continuously released from the products during their manufacture, while in use and after their disposal. They are therefore found in high levels in indoor dust, as well as in the environment. The most common BFR is PBDE (polybrominated diphenyl ether) which has been banned in Europe. PBDE is bioaccumulative and lipophilic. It is also an endocrine disruptor and has been shown to affect estrogen and thyroid, as well as the nervous system.

### **Carcinogen**

A carcinogen is any substance or agent that is directly involved in causing cancer, either by damaging DNA or disrupting processes in the cell.

### **Chlorine**

Chlorine is used in a variety ways. It is often used to disinfect water (i.e. drinking water, wastewater, and swimming pools). The use of chlorine as disinfection agent is necessary to eliminate harmful microorganisms that can make people ill, however it's use can produce a by-product called trihalomethanes (THMs), which can be harmful to health in large amounts. Although some cities are switching to alternative disinfection methods, chlorine remains the most effective disinfectant and is therefore still widely used.

Chlorine is also commonly used as a bleaching agent in the production of paper products (e.g. toilet paper). The bleaching process produces harmful by-products like dioxins that end up in the environment and that are harmful to both humans and animals. NOTE: feminine hygiene products and diapers are no longer bleached with chlorine and, therefore, there are no dioxins in these products.

### **DEET**

*N, N-Diethyl-meta-toluamide* or DEET is a common active ingredient in insect repellents. It has been found to be toxic to the nervous system in high doses and Health Canada has banned the sale of insect repellents containing more than 30% DEET, while they recommend to not use products containing more than 10% DEET on children under 12 (DEET should not be used on babies under 6 months). It is also not recommended to be used in excess (no more than 3 application a day), or to be used on cuts, bruises or damaged skin, as it is a skin irritant. It is also recommended to wash it off after it is no longer needed.

NOTE: Consider the insect risk. If you live in an area with high risks for Lyme or West Nile disease, or are travelling to Dengue or Malaria infected areas, the benefits of DEET to prevent deadly infections may outweigh the risk of chemical exposure.

### **Endocrine Disruptor**

Endocrine disruptors are chemicals that have the ability to interfere with the endocrine system, either by mimicking a hormone or disrupting hormonal processes. They have been linked to a wide-range of health issues like cancer and diabetes, reproductive and development issues and even behavioural problems.

### **Formaldehyde**

Formaldehyde is a volatile organic compound that is known to cause cancer. It is also an irritant that can damage the respiratory system and cause breathing problems such as asthma. It is used in a wide variety of ways and is therefore present in significant amounts in indoor air inside homes. The primary source is from tobacco smoke as well as smoke from wood-burning stoves and fireplaces. Formaldehyde is also found in glues, resins and adhesives and can be released in small amounts from items in the home like furniture, cabinets, building material (particleboard, fibreboard and plywood), latex paints, and wallpapers. It can also be present in household products like dishwashing liquids, fabric softeners, carpet cleaners, and some cosmetics (e.g. nail products). It is also used to make wrinkle-resistant clothing and fabrics.

Formaldehyde emissions are highest when products are new and decreases as products age. Emissions are also high when indoor temperature and humidity is high.

### **Lead (heavy metals)**

Lead is an extremely toxic metal that is a suspected carcinogen, an endocrine disruptor and can affect nearly every organ system in the body. It is especially dangerous to young children and developing fetuses. The primary exposure to lead in the home is in paint as older homes (built before 1976) may have lead-based paint, which is problematic if paint is chipping or flaking. Lead may also be present in drinking water as homes built before 1950 may be serviced by lead pipes, while lead soldering continued to be used in pipes up until 1990. Lead can also be present in household dust originating from both indoor and outdoor sources, and can be present in other items such as lead crystal wear, glazed glass or ceramic dishes bought outside of Canada and horizontal PVC blinds made in Asia or Mexico.

### **Lipophilic**

A substance is lipophilic when it has an affinity for fat or oily substances, and therefore have the tendency to get stored in fatty tissues in the body.

### **Oxybenzone**

Oxybenzone is an ingredient found in sunscreens as it can absorb UVA and UVB rays. However, a few studies have shown that it can penetrate the skin and act as a photosensitizer. This means that exposed



to sunlight, it produces free radicals. Oxybenzone is derived from another compound (benzophenone), which is known to cause DNA damage in the presence of sunlight. Because of its similarity to benzophenone, it is believed that oxybenzone is a potential carcinogen although studies haven't proved this conclusively yet.

Oxybenzone is restricted for use in Japan, while in the EU, products containing more than 0.5% oxybenzone must be labeled as "Contains Oxybenzone".

### **Pesticides**

Pesticides are a very diverse group of chemicals, which includes insecticides and fungicides, and are used in agriculture, gardening and the treatment of pests in the home. Many pesticides are highly toxic and can cause a variety of health problems as many are endocrine disruptors, carcinogens, reproductive toxicants, and/or neurotoxicants, as well as skin and eye irritants. These health issues are mainly a concern to agricultural workers and those who handle pesticides directly. For the general public, we are exposed to pesticides primarily from food as pesticide residues are found on produce (even after washing and peeling), but the effects of these low-doses are still unknown.

### **Perfluorinated Compounds (PFCs)**

PFCs are synthetic chemicals used in a number of different applications. Most notable PFCs are PFOS (perfluorooctane sulfonate), which are primarily used as stain-repellants (e.g. Scotchgard) on fabrics such as clothing and carpets, and PFOA (perfluorooctanoic acid), which is used in the production of Teflon-coated non-stick cookware. Both chemicals are bioaccumulative in humans and do not degrade easily in the environment. Both compounds have been shown to cause cancer in animal studies, as well as being developmental toxicants, immune system toxicants and endocrine disruptors (primarily affecting the thyroid hormone).

### **Phthalates**

Phthalates are a family of chemicals commonly used as plasticizers in a wide-variety of consumer products (toys, food packaging, shower curtains, vinyl flooring, wall coverings, etc.). It is added to PVC (plastic #3) to make it soft and flexible. It is also added to solvents (e.g. lubricants, adhesives, nail polish) and to synthetic fragrances in cleaning and cosmetic products to make them last longer. Several phthalates are endocrine disruptors and have been shown to affect reproduction and development, and some are suspected carcinogens. They are particularly a risk to young children as they can leach out of plastics when they are sucked and chewed. As such, new regulations by Health Canada now restricts phthalates in children's products made of soft vinyl (the regulation came into effect in June 2011).

### **Polyvinyl Chloride (PVC)**

PVC or vinyl (plastic #3) is one of the most commonly used types of plastics, used in a wide-range of consumer products such as water bottles, food packaging, cling film, furniture, electronics, toys, and building materials. The production of PVC releases toxic compounds in to the environment, namely vinyl

chloride, which is a carcinogen linked to breast and liver cancer in factory workers. PVC also leaches harmful compounds during its use (it can leach phthalates and off-gas VOCs) and after it is disposed (dioxins are produced when incinerated). PVC is also difficult to recycle, meaning that much of it ends up in landfills.

### **Reproductive and Developmental Toxicants**

Reproductive toxicants are agents that adversely affect the male or female reproductive system, such as by affecting sexual behaviour, fertility (e.g. sperm count, ovulation, etc.), the onset of puberty, the menstrual cycle, pregnancy outcomes, lactation or the onset of menopause. Developmental toxicants, a sub-group of reproductive toxicants, affects the development of a fetus or child. This can include birth defects, birth weight and biological or psychological dysfunctions. These effects are usually a result from exposure to toxicants in the mother (or even father) pre-conception or during pregnancy, but can also occur from post-natal exposures to the child.

### **Retinyl Palmitate (a.k.a. Vitamin A Palmitate)**

Retinyl palmitate is a form of Vitamin A that combines retinol (pure vitamin A) with palmitic acid (derived from palm oil). Vitamin A is an essential nutrient, necessary for the body, and retinyl palmitate is generally considered safe when ingested as it is used in Vitamin A supplements. However, its use in cosmetics is controversial, particularly when used in sunscreens. Another form of vitamin A (retinoic acid), when applied to the skin, is known to cause sensitivity to the sun and has been linked to an increased risk of skin cancer. There is cause to believe that retinyl palmitate may behave similarly to retinoic acid due to a recent animal study conducted by the National Toxicology Program. Retinyl palmitate can be found in many cosmetic products, including skin creams, moisturizers, soaps and make-up.

**Stain-repellants** (see Perfluorinated Compounds)

**Teflon** (see Perfluorinated Compounds)

### **Toxicant**

A toxicant is a substance or agent, introduced into the environment by humans that can cause harm to the health of humans or animals. Not to be confused with the term "toxin", which is a harmful substance produced by a living organism.

### **Triclosan**

Triclosan is an antibacterial agent used in a wide-variety of products. It is used in cosmetics, personal care and household products both as a preservative and as an active ingredient. It is also used as a preservative in the manufacturing of textiles, leather, paper, plastic and rubber to prevent the growth of bacteria, fungus and mildew. However, triclosan has been linked to a variety of problems, namely allergies, endocrine disruption, and most importantly microbial resistance. Triclosan is also toxic to

aquatic environments and, in the presence of chlorine in water, has been shown to produce toxic by-products such as chloroform and dioxins, both carcinogens. With the exception of toothpaste, where triclosan is effective in preventing gingivitis, the use of triclosan in other products have not been shown to be beneficial for health. Because of the risk of resistance, the Canadian Medical Association has called for the ban of triclosan and all anti-microbial agents in household products.

### **Volatile Organic Compounds (VOCs)**

Volatile organic compounds are a large and diverse family of chemicals that are emitted from a variety of sources, which include paints, varnishes, glues, adhesives, furniture, cleaning products, cosmetics, building materials, air fresheners and vehicle exhaust. VOCs are a main component of indoor air pollution and are found in higher concentrations inside the home compared to outside. Although not all VOCs are toxic, many are known to cause health problems such as respiratory problems, allergic reactions and immune effects. Some are also known or suspected carcinogens, such as formaldehyde, benzene (found in tobacco smoke, car exhaust and used in the production of plastics), methylene chloride (found in adhesive removers and spray paint), and perchloroethylene (used in dry-cleaning).