

Chapter Six

Hazardous Products in the Home

1. Introduction

Everyone uses hazardous chemicals in the home. These include products such as household cleaners, paints and solvents, pesticides, automotive products, hobby supplies, and batteries. When these chemicals are no longer needed, they are classified as household hazardous waste. According to national estimates, each home generates more than 20 pounds of hazardous waste each year and can accumulate as much as 100 pounds in the kitchen, bathroom, garage and basement combined.

Household hazardous products represent a small percentage of the waste stream. However, they are of concern to health officials and solid waste planners because, even in small amounts, they can be harmful to people and the environment.

Products, such as pesticides and drain and oven cleaners, can cause poisoning or respiratory problems, or burn the skin or eyes. Long-term use of items, such as paint strippers, adhesives, spot removers and waxes may cause cancer, nerve damage or reproductive failures. In 2013, 7.6% of all calls to poison control centers around the country were regarding household cleaning substances. Children were more greatly affected— with 10.4% of calls regarding children's exposure being from household cleaning substances.

Wastes thrown in the garbage, if not properly prepared, may threaten sanitation workers who can be injured by acids, fumes, fires and explosions. Hazardous wastes which reach the landfill may ultimately leach into groundwater. Those that go down the drain can cause serious problems for the sewage treatment system. Some chemicals--metals, for example--may pass through the treatment system to pollute the river. Many storm drain wastes get no treatment at all, flowing directly into streams. And of course those wastes that flow off the ground, such as pesticides or oil, go directly into streams. The significance of household hazardous wastes

Terms introduced in this chapter include:

- Hazardous products
- Danger
- Warning
- Caution
- Toxic
- Solvents
- Pesticides
- Polishes and waxes
- Automotive products
- Aerosol products
- Sewage treatment plant
- Household hazardous waste site

compared to commercial and industrial sources may be greater than imagined. Water treatment officials say that heavy metals and solvents from household cleaning products are comparable to industrial sources. Homeowners who use pesticides often over-apply them. In fact one study showed that suburbanites apply heavier doses to their lawns than farmers do to their fields.

Leftover products are often stored indefinitely in the garage or basement. Labels may fall off or deteriorate, and someone may inadvertently be exposed to the product. Storing also increases fire hazards.

This chapter is designed to familiarize the reader with the different types of household hazardous products. The chapter includes identification of hazardous products by looking for clues on the label. It also offers alternatives that are less hazardous. Pulling weeds by hand, for example, is a less hazardous alternative to using chemical herbicides to kill weeds. Finally, there are guidelines for safe use and disposal and a list of the resources and hotlines available to answer questions about household hazardous products.



Figure VI-1. Fertilizers, pesticides, and other hazardous material can get into storm drains and then into our rivers.

2. Identification

Product labels can provide clues to the hazard of the product. They may not say "hazardous," but other words mean the same thing: "flammable," "corrosive," "reactive," "explosive," "toxic," "poisonous," "volatile," "combustible" or "caustic." All of these products should be handled with care and attention given to the directions on the label for safe use.

If the product is toxic to humans, it will carry one of the words, "DANGER," "WARNING" or "CAUTION." The chemical industry evaluates toxicity by determining what the lethal dose is for 50 percent of laboratory test animals (LD50) exposed to the product. One can learn the LD50 of any pesticide chemical by calling the National Pesticide Telecommunications Network at 1-800-858-7378.

Products with the warning label "DANGER" are highly toxic. Most poisons fit into this category. Such products require substantial precautions in their use, and disposal of excess may be difficult.

The word "WARNING" indicates moderate toxicity. Caustic cleaners are moderately toxic and have "WARNING" printed on their labels.

The word "CAUTION" generally means low toxicity. Household bleach is relatively low in toxicity and therefore has "CAUTION" on the label.

Bleach is still toxic; it just takes more of it to cause a problem.

These warnings pertain only to acute toxicity, not to long-term effects. Absence of a warning label does not mean a product is safe nor are all products required to list ingredients.

Because a household may use several products with toxic contents at a given time, it is difficult to gauge the risk of combined exposure. Children and the elderly who spend concentrated periods of time indoors are at the highest risk. Since assessing risks can't be reasonably done by consumers, avoiding as many toxic products as possible is the best approach.

3. Types of Hazardous Products

There are a wide variety of household hazardous products on the market, from cleaning agents used daily to paints and solvents with infrequent use. *Figure VI-2* shows some common hazardous household products. The following is a list of general product categories with examples of product types.

Pesticides

Weed killer, insecticides, slug bait, flea collars, mothballs, wood preservatives.

Paints and Solvents

Latex or oil-based paints, paint thinner, furniture stripper, varnish, stains, WD-40.



Figure VI-2. Examples of hazardous household products.

Table VI-1. Signal Words for Household Pesticides.

	"DANGER"	"WARNING"	"CAUTION"
Toxicity:	Highly toxic	Moderately toxic	Low toxicity
Fatal dose range:	A taste to a teaspoon.	A teaspoon to a tablespoon.	An ounce to a pint.
Examples:	Ortho "Funginex"	Round Up Orthene	Safer's soap Bacillus thuringiensis

Table VI-2. Signal Words For Household Cleaners.

	"DANGER"	"WARNING" or "CAUTION" *
Toxicity:	Highly toxic	Moderately to low toxicity
Fatal dose:	A taste to a teaspoon.	A teaspoon to a pint.
Examples:	Drain cleaner Bleach Toilet bowl cleaner "Easy-Off" oven cleaner	Liquid laundry products

* Warning and Caution are used interchangeably on labels for household cleaning products. One does not indicate more or less toxicity than the other.

(Sources: [Safe storage of hazardous household chemicals](#), Seattle-King County Department of Public Health, 2015)

Household Cleaners

Drain, oven, and toilet bowl cleaners; general purpose cleaners, spot removers, disinfectants and deodorizers.

Polishes and Waxes

Floor wax, furniture polish, shoe polish, auto wax, metal polish, nail polish.

Automotive Products

Waste motor oil, antifreeze, brake fluid, solvents, car batteries.

Miscellaneous

Batteries, glues, aerosols, photographic supplies, inks, markers, other hobby supplies.

4. Alternatives to Hazardous Products

The best way to prevent the hazards of the above chemicals is to reduce or eliminate their use. When fewer chemical products are purchased, not only is the environment protected, but a message is sent to the manufacturer to produce less.

In order to avoid all the special formulas availa-

ble on retail shelves, one must know what alternatives work. A re-examination of aesthetic assumptions may also be necessary. The lawn can be attractive without looking like a putting green. Toilets can be clean without the odor of disinfectants. Furniture and floors can be handsome without being shiny.

A. Prevention

One way to reduce hazardous chemical use is to prevent problems from occurring in the first place. Treating spots as soon as they occur, pouring baking soda on fresh spills in the oven, and periodically pouring washing soda and hot water down the drain are ways to avoid situations where only harsh chemicals will work. The "Alternatives" fact sheets on fleas, moths and spiders, ants, flies and cockroaches detail methods of preventing problems from these pests. In the yard and garden, proper plant selection and care will help to resist diseases and weeds.

Planting to attract birds and insects that prey on pests can help as well. See "Alternatives" fact sheets on [Appropriate Plants for Northwest Landscapes](#), [Lawn Care](#), [Weed Management for the Lawn & Garden](#), and [Garden Insect Pests](#).

B. Physical Alternatives

When a problem does require action, there are often physical rather than chemical solutions. Examples are offered in Table VI-3 and in more detail in "Alternatives" fact sheets at the end of the chapter.

C. Less-Toxic Chemical Alternatives

If physical means aren't adequate, then chemical

alternatives of the least hazardous type should be considered, as in the following examples.

Paints. When buying paint, use water-based acrylic or latex paints whenever possible. They are safer than oil-based paints to use, clean-up and dispose. Avoid aerosol spray paint if possible. When paint thinner or turpentine is necessary, save it for reuse. Let the particles settle out in a closed jar and pour off the clear liquid.

Pesticides. Commercial alternatives to pesticides are becoming more available. These include insecticidal soaps and biological treatments

Table VI-3. Alternatives to Hazardous Chemicals

For This...	Try this...
All purpose cleaner	1 tsp liquid soap, 1 tsp borax, 1/4 cup vinegar, and 1 quart warm water. Or 1/4 cup white vinegar with 1 quart warm water.
Brass polish	Paste of equal parts vinegar, salt and flour. Be sure to rinse completely afterward to prevent corrosion.
Car battery corrosion removal	Baking soda and water
Chrome polish	Vinegar
Coffee cup stain removal	Rub with moist salt or baking soda.
Copper cleaner	Paste of equal parts vinegar, salt and flour. Be sure to rinse completely afterward to prevent corrosion.
Crayon mark remover	Rub mark with toothpaste and a damp cloth. Do not use on non-vinyl wallpaper.
Decal removal	Soak in hot water if practical; otherwise use white vinegar.
Dishwashing	Washing dishes by hand with a liquid soap or mild detergent is preferable to using strong electric dishwasher detergents. Look for detergents without phosphates or chlorine.
Disinfectants	Mix 1/2 cup borax with 1 gallon of boiling water. Or undiluted white vinegar.
Drain cleaner	Try plunger first. Then pour 1/2 cup baking soda down, then 1/2 cup vinegar; wait a few minutes, then follow with 2 quarts boiling water. Repeat if needed. If this fails, rent or buy a drain snake. Use solution weekly to prevent buildup.
Furniture polish	Olive oil or almond oil.
Garbage disposal deodorizer	Used lemons or baking soda
Grout and stain cleaner	Paste made of baking soda and water, clean with toothbrush, spray with vinegar and water mix and after foaming is finished, rinse with water.
Handcleaner: paint/grease	Baby oil or margarine, then wash with soap and water.
Laundry detergent	1/2 cup white vinegar or baking soda or borax per load. Or laundry soap or a liquid detergent with low or no phosphate. A tablespoon of vinegar in the rinse increases the brightness.
Linoleum floor cleaner	1 cup white vinegar plus 2 gallons water
Linoleum floor polish	Polish with skim milk (it doesn't smell, milk evaporates!)

such as a spray of *Bacillus thuringiensis* (B.t.) for tent caterpillars and gypsy moths, and a spray of nematodes for cabbage worms.

Household Cleaners. Alternatives to hazardous cleaning products have been used successfully for generations. Most jobs can be done with a few basic ingredients. A good way to get started is to set up a Safe Cleaning Kit with the following products: baking soda, salt, vinegar, borax, soap and vegetable oil (*Figure VI-3*).

Some recipes for non-toxic household cleaners

are provided in the Safer Cleaning Products fact sheet. If recipes are prepared at home, they can be kept handy in spray bottles.

The all-purpose cleaner in the fact sheet uses one teaspoon each, liquid soap, borax and vinegar to one quart water. It can be used for counter tops, walls, woodwork and kitchen appliances. For carpet stains a solution of 1/4 teaspoon soap to one quart water is recommended. It needs to be rinsed and blotted dry. To neutralize odors in a carpet, sprinkle with baking soda or one part borax to two parts cornmeal. Vacuum after one hour.

Table VI-3 *continued*. Alternatives to Hazardous Chemicals

For This...	Try this...
Mildew remover	A non-chlorinated scouring powder cleans mildew stains from grout. Scrub hard.
Moths (in clothes)	Thoroughly clean any used clothing or furniture before introducing into home. Wash woolens before storing; store in tight container with cedar chips, newspapers or lavender flowers (instead of mothballs). Vacuum rugs, behind and under furniture. Shake out woolens periodically.
Oven cleaner	As a preventive measure, cover the oven bottom with a sheet of aluminum foil. Clean up spills promptly. To clean, use baking soda, soap and water with a copper scrubber and lots of elbow grease. Or use a non-chlorinated scouring powder or non-caustic oven cleaner.
Paint (oil-based)	Latex paint, avoid aerosols.
Porcelain stain removal	Brush with baking soda
Refrigerator deodorizer	Open box of baking soda
Rug/carpet cleaner	Sprinkle baking soda, then vacuum. Or clean immediately with soda water or baking soda paste, then vacuum.
Scouring powder/abrasive cleaner	Baking soda or borax. Or rub area with 1/2 lemon dipped in borax, rinse and dry.
Silver cleaner	Rub gently with baking soda and damp sponge (large objects).
Stain removal	For small objects place in pot of water on stove with small piece of aluminum foil; add 1 tsp baking soda and 1 tsp salt; boil 2-3 minutes. Or rub gently with toothpaste on a cottonball.
Stainless steel cleaner	Depends on type of spill. Treat as quickly as possible and blot as much liquid as you can with paper towel or cloth (don't rub). For most stains, safest to try cold water first, then hot water with a little detergent.
Toilet bowl cleaner	Baking soda
Tub and tile cleaner	Baking soda or borax or soak with white vinegar
Vinyl floor cleaner	Use vinegar (full-strength) on a sponge, then use baking soda as a scouring powder. Rinse well.
Wine stain removal	1 gallon warm water and 1/2 cup white vinegar or 1/4 cup borax Water or rubbing alcohol
Window cleaner	1/2 cup vinegar in 1 quart warm water, wipe with crumpled newspaper.

DISCLAIMER: Reference to products and brand names in this publication is for illustration only and does not imply endorsement by L&BC MR. Non-toxic products may vary in their effectiveness so experiment to find the product that satisfies your need.



Figure VI-3. Safe alternatives to some household hazardous products.

Laundry detergents, although not generally thought of as hazardous, can cause water quality problems because they are used so extensively. They are a source of phosphorus, zinc and arsenic and some contain compounds that do not degrade in the sewage treatment process. Phosphorus causes algal blooms in waterways robbing fish of their oxygen supply. The Portland area has banned the sale of phosphate-containing laundry detergents. Households whose laundry consists mainly of natural fabrics can successfully switch to soaps, such as White King, where water is soft. If water is hard, it can be softened by adding borax or washing soda.

Experimentation can show whether bleach is actually necessary. If it is, use an oxygen rather than a chlorine type. Chlorine is corrosive, can damage fabrics, and is extremely reactive. An oxygen bleach is usually dry and will say "safe for all fabrics" on the label. Alternatives to bleaches in the laundry are vinegar or borax (1/2 cup per load).

Most automatic dishwashing detergents contain phosphates and chlorine, but there are several brands which contain neither. Among them are Klear II, Bi-O-Clean, and Life Tree.

5. Selection and Safe Use

Sometimes there are no satisfactory alternatives to household hazardous products. When this is the case, it is important to select the products carefully and use them safely. This will help reduce hazardous waste problems. Here are some tips for selection and use:

Buy only the amount needed. If only a small amount is needed, can it be borrowed from a neighbor? Don't purchase the economy size to save a few cents per unit if that will create a storage or disposal problem at a later date. Buy the quantity that fits the immediate need and share what's left with a neighbor or friend. Try to use up products that are purchased.

Always follow label directions and use only amounts indicated. Wear protective clothing when directions call for it. Gloves, goggles and long sleeved shirts can prevent direct contact with chemicals and absorption through the skin. Do not wear soft contact lenses when working around solvents. They can absorb the chemicals and keep them near the eyes. Use products in well ventilated areas to avoid breathing fumes. Keep containers tightly closed to prevent evaporation. Use products outdoors when possible. When indoors, use an exhaust fan and open the windows.

Avoid aerosol spray products. The small size of aerosol particles makes it easy for them to be inhaled deeply into the lungs and quickly absorbed into the blood stream. Aerosol cans are also explosive when exposed to heat or pressure.

Never mix chemical products. Mixing hazardous products can start a chemical reaction that could create highly toxic fumes or cause an explosion.



Figure VI-4. Vacuuming is the principle non-chemical control method for clothes moths. Be sure to remove cushions from stuffed furniture and reach into crevices. Immediately remove and discard the vacuum bag.

Use safe substitutes when available. Before buying a product, read the label to make sure it is appropriate to the task.

Store them safely. Store unused portions of products in their original container, tightly sealed. If packages can't be sealed, put the product in a secondary container and seal with a lid. Store out of reach of children and pets. Products that emit fumes should be stored outside. If a poisoning occurs, call a doctor or the statewide Poison Control Center, 1-800-452-7165. First aid advice and antidotes on the product labels are sometimes wrong.

6. Disposal

People inappropriately dispose of hazardous household products in many different ways. These include flushing them down the drain or toilet, tossing them in the garbage, pouring them down the storm drain or on the street, or dumping them illegally. None of these options is considered safe. To understand why, it is helpful to understand what happens to the waste when it "goes away." Follow direction on container disposal.

A. Risk to the Environment

Waste from Linn and Benton Counties goes to the Coffin Butte Landfill. If toxic materials are placed in a landfill they will be more concentrated than if used uniformly in the environment.

Flushing hazardous products down the drain will send them to a sewage treatment plant. There, bacteria are utilized to break down the solids in the water. However, some of the wastes will continue on into the Willamette or Santiam River where they cause problems. Some residents have septic systems. Toxic substances in the septic system can kill the helpful bacteria in the tank and percolate through the drain field into the soil where they can contaminate ground water and local wells.

The driveway is often used as a "catch all" for motor oil, antifreeze and other automotive products. These wastes are carried by rainwater to storm drains. Most storm drains run directly into

the nearest waterway. For example, in Benton County storm drains generally enter small creeks which run into streams such as the Oak Creek, Marys River and the Willamette River. Any toxic wastes pose an immediate threat to fish.

B. Responsible disposal

Many products no longer needed by one individual or household can be used by others. Paint, wood preservatives, weed killers, fertilizers and pesticides can be put to good use by somebody. For more information call: Republic Services at 541-754-0444.

Follow these general guidelines for proper disposal of hazardous products:

- ◆ Use all of the product in accordance with instructions. This is the preferred disposal option for household cleaners, polishes, spot removers, hobby chemicals, paints and many pesticides. The exceptions are pesticides banned from use, such as DDT. If unable to use the product, try to find someone else who can. Pesticides more than two years old may be ineffective and not worth giving away.
- ◆ Recycle hazardous products whenever possible. This is the preferred option for waste motor oil and car batteries. Car batteries can be returned to the dealer when a new battery is purchased. According to Oregon law retailers must accept an old battery when a new one is purchased
- ◆ Separate household hazardous waste products from household garbage and dispose of them at waste events.

While it is nearly impossible to live without hazardous products in modern society, it is possible to reduce dependence on them. When they must be used, it can be done safely, with care and prudence.



Figure VI-5. Help protect the watershed by taking autos to a professional carwash where water is recycled and treated or wash them at home on a permeable surface such as the grass or gravel.

Five Steps To Protect Your Family's Health And The Environment

Many common household products may be hazardous to your family's health and the environment. Play it safe - try the steps below.

- 1.** Avoid household products marked "Danger". Look for the word "danger" on cleaners, polishes, paint strippers, and pesticides. "Danger" means the product could poison you, cause serious damage to your skin or eyes, or easily cause a fire.
 - ◆ Choose products marked "caution" or "warning", or better yet, products that don't need warnings.
 - ◆ Choose water-based products, such as latex paint, white glue and water-based paint stripper.

- 2.** Reduce your need for yard and garden pesticides. Pesticides are poisons. Besides killing bugs and weeds, they may also poison children, irritate eyes or skin, cause cancer or kill birds and fish.
 - ◆ Buy plants that will grow well in this climate and in your yard; they use less water and pesticides.
 - ◆ Build healthy soil by adding compost or aged manure and using slow-release organic fertilizers.
 - ◆ Try nonchemical products to control pests, such as teflon tape for root weevils or soap and water solution for aphids.

- 3.** Recycle used motor oil. Water from storm drains is not treated and oil could end up in our streams and lakes, threatening fish and birds.

- 4.** Use less-toxic cleaners. Some cleaners contain very hazardous ingredients that can burn your eyes, skin or lungs. Look for safer name brand substitutes at your local grocery store, or use simple alternatives. There are many everyday household products we all keep on hand that can be used for cleaning without doing damage to the environment. These include water, vinegar, baking soda, borax, mineral oil, newspapers, and rags.

- 5.** Dispose of leftover hazardous products properly. Careless disposal of hazardous household products in a storm drain or sink can pollute local groundwater. If you throw them in the garbage, the chemicals can endanger collection and disposal workers.

Is Your Home A Healthy Home? - Toxin Checklist

Each year, over 1 million children are accidentally poisoned in their home. The most common substance to poison children is a household cleaner. Many of these products are considered safe. Think of your own home - you probably have dozens of bottles of cleaners, containing hundreds of chemicals. Check off the products you use in your home. All information comes from actual manufacturer's Material Safety Data Sheets and National Poison Control Centers.

___ Liquid Bleach - DANGER! - Causes severe eye injuries. Can damage mouth, throat, and stomach. Vapors irritate the nose, throat, and lungs.

___ Toilet Bowl Cleaner - DANGER! - Contains hydrochloric acid which is highly corrosive. Burns the skin, mouth, and throat. Causes blindness.

___ Furniture Polish - DANGER! - Contact with skin can dissolve vital skin oils and cause severe dermatitis (skin burns). Can permanently injure eyes.

___ Stainless Steel Cleaner - DANGER! - Can burn the eyes and skin. Vapors can cause headaches, dizziness and stupor.

___ Aerosol Dusting Spray - DANGER! - Flammable. Irritates the eyes, lungs. 5,000 people visit emergency rooms each year with an aerosol can-related injury.

___ Oven Cleaner - DANGER! - Contains lye which is highly corrosive. Burns the skin, mouth, throat, and stomach. Causes permanent blindness.

___ Brass, Copper, Silver Polish - WARNING! - Can cause moderate eye and skin damage and burns. Fumes can cause headaches, dizziness and stupor.

___ Carpet Shampoo - WARNING! - Can cause moderate to severe burns to eyes and skin. Vapors can irritate the nose, throat and lungs.

___ Carpet Stain Remover - WARNING! - Can cause moderate to severe damage to eyes and skin. Vapors can cause respiratory distress.

___ Upholstery Stain Remover - WARNING! - Can cause moderate to severe damage to skin and eyes. Ingesting can lead to abdominal tenderness and bleeding.

___ Disinfectant Cleaner - WARNING! - Contains flammable propellants. Can burn skin and cause permanent corneal damage. Fumes can strongly irritate the nose, throat and lungs.

___ Powdered Bleach - WARNING! - Breathing the dust can produce asthma-like symptoms. Damages eyes and skin. Mixing with ammonia can produce deadly fumes.

___ Aerosol Air Freshener - WARNING! - Contains highly flammable propellants. Can cause moderate irritation to the eyes. Can cause mild to moderate lung irritation, including asthma-like symptoms.

___ Window Cleaner - WARNING! - Can cause moderate irritation and damage to eyes. Fumes can be moderately to highly irritating to the lungs. Can irritate the skin.

___ All-Purpose Cleaner - WARNING! - Strong lung irritant. Can cause mild to moderate damage to the eyes. Fumes can cause weakness and dizziness.

___ Basin, Tub, & Tile Cleaner - WARNING! - Some are flammable. Contains acids that can burn the skin and cause corneal damage. Vapors can cause strong respiratory irritation.

___ Tile/Hard Water Spot Remover - WARNING! - Contains corrosive acids that can cause moderate burns and irritation to skin and eyes. Vapors can be highly irritating to nose, throat, and lungs.

___ Floor Cleaner - WARNING! - Contains corrosive acids that can cause moderate burns and irritation to skin and eyes. Can burn mouth and throat. Can cause blindness.

___ Scouring Powder with Bleach - WARNING! - Can cause moderate irritation to skin. Can burn mouth and throat. Can cause permanent eye damage. Gives off irritating fumes when wet.

___ Drain Cleaner - WARNING! - Burns mouth, tongue, throat, and stomach, causing permanent damage. Can cause severe eye damage and blindness.

___ Automatic Dishwashing Liquid - WARNING! - Strong skin irritant. Can burn throat.

Many products contain bleach which can cause swelling and tearing of eye issue. Vapors can cause headaches.

Automatic Dishwashing Powder - **WARNING!** - Strong eye and skin irritant. Contains corrosive bleach that can burn mouth and throat. Most common reported poison among children.

Dishwashing Liquid - **CAUTION!** - Possible skin irritant. Can cause swelling and tearing of eye tissue. Vapors can cause labored coughing, labored breathing, and in severe cases, death.

Liquid Laundry Detergent - **WARNING!** - Strong eye irritant, can cause corneal damage. Can irritate the skin. Vapors can cause coughing, labored breathing, and in severe cases, death.

Powdered Laundry Detergent - **WARNING!** - Can burn the skin and eyes, can cause corneal damage. Dust can cause headaches, dizziness, labored breathing, and in severe cases, death.

Liquid Fabric Softeners - **CAUTION!** - Mild eye irritant. Skin irritant. Vapors can cause headaches, dizziness, nausea, labored breathing, and in severe cases, death. Can aggravate asthma symptoms.

Fabric Softener Sheets - **CAUTION!** - Possible skin irritant. Can irritate eyes. Vapors can cause headaches, dizziness, nausea, and in severe cases, death.

Powdered Carpet Deodorizer - **CAUTION!** - Contact with skin can produce mild irritation. Contact with eyes can cause abrasive eye damage. Dust can irritate the lungs and aggravate asthma symptoms.

Aerosol Deodorant - **DANGER!** - Contains highly flammable propellants. Vapors can irritate the lungs and eyes.

Aerosol Hair Spray - **DANGER!** - Contains highly flammable propellants. Can cause eye damage due to direct contact. Skin irritant. Vapors can cause headache, dizziness, and fatigue.

Mouthwash - **CAUTION!** - Eye, nose and throat irritant. Ingestion can lead to dizziness and stupor. Most products contain 20% ethyl alcohol. Each year a number of young children die from ingestion.

Cologne/Perfume - Most scents contain enough alcohol to harm and kill a child after ingesting only a few swallows. Many ingredients can irritate the skin and burn the eyes.

Cosmetics - Cosmetics are second only to cleaning products as a poisoner of children. They are not regulated like cleaners and many have no warning labels.

All cleaning products are harmful if swallowed. However, products come with a "signal word" that designates the level of toxicity of the product.

"DANGER!" indicates the products is highly toxic (less than a teaspoon can harm or kill an adult), corrosive (can burn the skin or the eyes), or flammable.

"WARNING!" means the product is moderately toxic (a teaspoon to an ounce can harm or kill an adult).

"CAUTION!" means a product is slightly toxic (more than an ounce can harm or produce a toxic effect in an adult).

The label on products only have to warn of acute (immediate) harms from ingesting a product, breathing the fumes, or contact with the eyes and skin. They don't reveal the harms presented by chronic (long-term) exposure to the chemicals in these products.

Hazardous Waste Information: Concerns

There are several criteria that are used to evaluate ingredients in specific products, and thus the environmental safety of the products themselves. Any analysis of product ingredients should look at their potential effects in these areas:

Air quality/atmospheric impact: The manufacture, use, and disposal (especially through incineration) of many common consumer products cause the release of a variety of hazardous chemicals and compounds into the air and atmosphere. These releases may include direct introduction to the air via intentional use and indirect introduction of toxic materials and harmful by-products during the manufacturing process.

Water impact: Use of specific products can directly and indirectly affect ground water, aquifers, and bodies of water, from streams and ponds to oceans. This in turn affects all life, from insects and fish to humans. Contamination can occur during consumer use, manufacturing, or when a given product is emptied into a public or private sewage system after use.

Land impact: Consumer products and specific ingredients can also contribute to land-based environmental concerns. These impacts can be caused by raw material and resource extraction, and by manufacture, use, and disposal of a given product. Evaluations of products and ingredients should examine their potential contributions to: resource depletion, deforestation, loss of habitat and biodiversity, soil contamination, and landfill space consumption.

Human health: Common consumer chemicals and products can dramatically impact human health at any stage in their life cycle, from manufacture to use and disposal. Of particular concern is the effect any ingredient or product has on the user and any effect on the general population caused by accumulation in either household or external environments.

When considering how product ingredients impact environment and health, it's necessary to better understand if the product is biodegradable, and at what rate. When a chemical does not biodegrade, its concentrations in the environment continue to increase as more and more of the chemical gets added to existing amounts that are themselves not biodegrading. Since toxic effects increase with concentration, an otherwise relatively benign chemical can quickly become a dangerous one if it does not biode-

grade and instead continues to "pile up" to unhealthy levels in either the environment or the human body. These growing concentrations of a chemical caused by a lack of biodegradability are referred to as bioaccumulation. The speed at which a given material breaks down makes a big difference in the bioaccumulation threat it might represent. For example, a chemical that takes just five days to decay is far less worrisome than a chemical that takes five, 50 or 500 years to biodegrade.

A final point to remember: we don't live in isolation. Everything we do affects the world around us. Breathing consumes oxygen and releases carbon dioxide. We consume food and



release heat and waste. But having an impact isn't necessarily bad. On a simplified scale, our heat and wastes are necessary for other organisms. Their heat and wastes, in turn, combine with our own and are ultimately absorbed by plants, which then become our food or industrial raw materials. That's the way it should be. The world we inhabit is a beautifully balanced system of profound and complex interactions among all its organisms. The impact each organism has is necessary for this planetary system to work. Unfortunately, humankind has developed lifestyles and industrial processes that disrupt this self-sustaining balance. Our objective now must be to minimize our disruptive lifestyles and replace those industrial processes that threaten the sustainability of nature's cycles with processes that do not.

Source: Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com

Hazardous Waste Information: Breathing Easier

In the past 20 years, the construction of “tight” energy-efficient buildings has led to a sharp reduction in the amount of fresh air entering our homes, schools and workplaces. At the same time, our buildings have been filling up with fumes from paints, stains, furniture, household cleaning products, and other synthetic materials; the results are startling. According to research conducted by the EPA, the air inside the average home is typically 2 to 5 times more polluted than the air just outside its walls. One five-year study found that the levels of certain chemicals in many homes were 70 times higher than they were outdoors. Another study examining indoor air quality in six cities discovered that peak concentrations of 20 toxic chemicals were a remarkable 200 to 500 times higher inside than the highest concentrations recorded outside. When the Consumer Products Safety Commission studied air pollution, it found that outdoor air contained an average of less than 10 volatile organic compounds (or VOCs, a type of airborne pollutant) while indoor air contained approximately 150.

This indoor air pollution has many sources. A wide variety of household cleaners and products like window and all-purpose cleaners, paints and stains contain toxic materials called volatile organic compounds (VOCs) that are designed to quickly evaporate into the air to aid drying. Hot chlorinated water, such as that emitted by an automatic dishwasher or a shower, can fill the air with chloroform and other chlorine-related compounds. For up to five years after their manufacture, furniture constructed from pressed composite wood products like plywood or particleboard gives off formaldehyde gas, which comes from the resins used to make these materials. Improperly vented gas stoves and other combustion devices add carbon monoxide and particulate pollution to indoor air. Other common sources of indoor air pollution are aerosol sprays and air fresheners. In homes where these products were used frequently, mothers suffered from 25% more headaches and 19% more depression, and infants under six months of age had 30% more ear infections and 22% higher incidence of diarrhea, according to a study at Bristol University in England that was published by *New Scientist* in 1999.

To reduce the impact of indoor air pollutants, circulate fresh air through your house as often as possible. Use cleaning products made from natural and non-toxic ingredients. When remodeling, ask for low-VOC paints and stains. Avoid the use of spray paint. Purchase furniture made from whole wood. Make sure your furnace, stove, and other combustion devices are inspected and vented to the outside. Fill your home with houseplants, which naturally filter air and provide fresh oxygen.

Remember to refer to the lists of less hazardous cleaning products in Table VI-3.

Source: Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com



Hazardous Waste Information: Pest Control Without Risks

True or false: The Environmental Protection Agency (EPA) will not approve pesticides that can harm humans or the environment.

Answer: False.

The EPA allows pesticides to be registered as long as there is no “unreasonable risk to man or the environment” - the operative word being “unreasonable”. Conventional, EPA-approved pesticides can still pollute our air and water, harm wildlife (including endangered species), increase the risk for serious health problems in humans, and lead to pesticide-resistant pests.

There are, however, many effective, inexpensive, and environmentally friendly pest control options for the home gardener. The easiest and most straightforward is to prevent pests from getting into your garden in the first place. Choose plants (such as catnip and marigolds) that repel certain pests, or others (such as sweet alyssum and dill) that attract pest-eating insects. Ask your neighborhood garden shop which plants work best against the local pest population. Furthermore, since pests and disease thrive in decayed plant matter, it also helps to keep your garden tidy.



Ladybugs are one of many beneficial creatures that can provide natural protection from pests.

If your garden is already infested, turn to one of the many natural pest control items already on the market:

- ◆ Sprays containing pungent substances (garlic, pepper), oils (neem oil, citrus oil), or soaps that repel insects and can be applied directly to plants or soil.
- ◆ Beneficial creatures such as miniwasps, nematodes, and ladybugs that attack pests. Or, build a bat box or birdhouse to attract another type of pest-eater.
- ◆ Pathogens including certain fungi, bacteria, and viruses that infect specific pests.
- ◆ Pheromones (natural or synthetic) that draw various insect species into traps or disrupt their mating cycles.
- ◆ Noise generators that irritate pests and keep them away.

You can also try homemade pest control:

- ◆ Drench plants with strong sprays of water from your hose.
- ◆ Pick pests directly off plants by hand.
- ◆ Make your own non-toxic pesticides, such as a spray bottle filled with a mix of liquid soap, hot pepper sauce, garlic, and water. A dish of beer will attract snails and slugs.

As with conventional pesticides, natural pest control products have the potential to harm beneficial insects as well as pests, so use them only as needed.

Source: Union of Concerned Scientists (2004) "Pest Control without Risks" Online. Internet. May 26, 2005. Available at: www.newdream.org/consumer/ucspest.html

For more information, check the following websites:

- ◆ EPA - Pesticides: Health and Safety
<http://www.epa.gov/pesticides/health/human.htm>
- ◆ EPA - Pesticides: Controlling Pests
<http://www.epa.gov/pesticides/controlling/garden.htm>
- ◆ Beyond Pesticides: Least Toxic Control of Pests in the Home and Garden
<http://www.beyondpesticides.org/alternatives/factsheets>
- ◆ Extremely Green Gardening Company - Organic Pest Control Guide
<http://www.extremelygreen.com/pestcontrolguide.cfm>

Hazardous Waste Information: Banish Pests Without Poisons

We use pesticides because they are good at killing pests, but that's their problem: they're good at killing! And the damage these toxic chemicals can cause often extends to human beings as well.



Compounding the problem is the fact that pesticides are not required to provide a complete list of ingredients on their labels. While the active ingredients must be listed, these materials usually make up a tiny percentage of the total volume of the product. Missing from product labels are ingredients like carrier and dispersal agents, and other so-called "inert" ingredients. In many instances, however, these other "inerts" are anything but and are often as toxic as the active ingredients.

A healthy home is one without chemical pesticide products. There are non-toxic alternatives for almost every use of pesticides.

- ◆ Keep food stored in securely closed containers.

- ◆ Use mousetraps instead of mouse poison.

- ◆ Boric acid and pepper sprinkled in the back of cupboards and along baseboards and the inside of crawlspace walls are effective insect barriers.

- ◆ Cedar chips and herbal sachets repel moths in closets and drawers.

- ◆ Outside, plant mint, marigolds, onions or garlic at the border of gardens to keep out unwanted insects. Use the same plants along the walls of your house to keep pests from coming inside.

- ◆ Erect houses for swallows, martins and bats in your yard to keep your property free from flying insects.

Source: *Seventh Generation* (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com

Did you know...

- ◆ On average, humans ingest approximately 6.3 micrograms per day of bisphenol-A from the linings of food cans. Bisphenol-A is the building block of polycarbonate plastic and may interfere with the body's natural hormone actions.
(*Achieving Victory Over a Toxic World*, Mark Schauss, 2008)
- ◆ The U.S. Centers for Disease Control and Prevention recently found dibutyl phthalate (DBP), a chemical used in nail polish, perfumes, mosquito repellents, some adhesives and some inks, in the urine of 289 people tested. The highest levels of DBP, known to interfere with hormones, were found in women of childbearing age.
Environmental Health Perspectives, October 2000
- ◆ U.S. production and use of hormone-disrupting alkylphenol ethoxylates, used in laundry detergents and shampoos, exceeded 450 million pounds in 1990.
National Research Council, 2000
- ◆ Two ounces of ethylene glycol antifreeze can kill a dog, 1 teaspoon can be lethal to a cat and 2 tablespoons can be hazardous to children.

Nebraska Cooperative Extension, "Handling Wastes: Used Oil and Antifreeze," August 1994. www.ianr.unl.edu/pubs/wastemgt/nf196.htm

Hazardous Waste Information: Baby Products

Out of all the members of our families, the littlest people in our lives need the greatest protection from toxic products because they are at the greatest risk from harm. Pound for pound, babies' and children's higher metabolisms mean they ingest more food and air than adults and so are exposed to higher relative levels of common toxins. At the same time, young bodies have fewer defenses against these toxins because their immune and detoxification systems are still very much under construction. In fact, depending on the organ or system in question, development of these crucial protection systems lasts into the early teens.

Given these facts, it's surprising to learn that many of the personal care and other products designed specifically for children contain the same toxic ingredients as products made for adults. These ingredients include petrochemical dyes, artificial fragrances, harsh alcohols, mineral oils, formaldehyde, talc, and many other chemicals.

In general, the less baby care products you use, the healthier your baby will be. When selecting those products you do choose to use, look for those with all-natural and non-toxic ingredients, and as few total ingredients



as possible. When it comes to our kids, simpler is always better! Choose products which contain natural soaps instead of synthetic surfactants, essential oils instead of artificial fragrances; aloe and herbal moisturizers instead of petroleum jelly and mineral oil, and no dyes, alcohols, parabens, chemicals like quaternium-15 or ethanalamines, or anything else that looks like it might be syn-

thetic in nature. Be cautious of fluoride toothpaste because in high doses fluoride is poisonous. (That's why such toothpastes have warning labels!) Never use talc or talcum powder products because talc is a mineral that can be contaminated with asbestos; use corn starch powders instead. Choose unbleached or non-chlorine-bleached paper products, wipes, and diapers to keep the threat of dioxin away from your baby.

Source: *Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home"*. Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com

Hazardous Waste Information: Personal Care Products

The average American bathroom cabinet is a veritable chemicopia of soap, mouthwash, toothpaste, shampoo, and hygiene products. These products contain a wide variety of chemical compounds and synthetic substances, the safety of which remains questionable. In spite of this important point, federal government regulations continue to allow incomplete ingredient disclosure on the labels of many personal care products. The result in these cases is that consumers simply don't know what chemicals they are applying to sensitive areas of their bodies every day.

There are a number of natural products on the market. The best ones will provide a list of ingredients, and most of these ingredients will have familiar names. (Natural soaps, for instance, will contain coconut, corn, soy, canola, or olive oil.) Of particular concern are tampons, which are made from rayon (highly chlorine-

bleached wood pulp) and/or low-grade cotton, which has often been grown overseas and has been treated with DDT or other pesticides. Many tampons are subjected to chlorine-based bleaching. These kinds of feminine care products can expose women to the highly toxic dioxin they contain. The best rule of thumb is to have minimum impact. Unbleached is better than bleached, organic cotton is better than non-organic. Sanitary pads are less invasive than tampons; these also come in non-chlorinebleached varieties.

Source: *Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home"*. Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com



Skin Deep: More Beauty Product Ugliness from EWG

Make-up is back in the news as the subject of a new investigation conducted by the Environmental Working Group, which found that countless cosmetic products contain ingredients that the industry itself knows are harmful even if used as directed.

After analyzing over 23,000 cosmetic products, the Environmental Working Group (EWG) found that almost one in 30 failed to meet one or more industry or regulatory safety standards. Among the EWG's many findings:

- 383 products contained ingredients that are banned in cosmetics sold in Canada, Japan, and/or the European Union.
- 447 products were found by the industry's own safety panels to be unsafe even when used as directed, including 86 products that were found to be unsafe for all suggested product applications.
- Over 750 products sold in the United States don't meet industry and/or government safety standards that are in place in other countries.
- 22,696 products, or 98% of all products contained one or more ingredients that have never been assessed for safety by a public agency or an independent study.
- 1,331 products contained ingredients for which the industry's own safety panels have said insufficient data exists to determine if their use in cosmetics is safe.

These situations exist because cosmetics are largely unregulated and untested. The FDA, the agency in charge of policing the cosmetics industry, has no authority to require that cosmetics be tested for safety, and so few if any ingredients or formulas ever are. In addition, while federal law mandates that companies list the ingredients in each of their products, manufacturers do not need regulatory approval before selling a given product to the public. In fact, according to the EWG, 90% of the ingredients in such products have never been studied for safety. Instead, an industry-sponsored panel conducts safety reviews, though apparently even its recommendations are often ignored.

Citing its findings, the EWG called on the FDA to take three important steps to protect public health:

1. Set a safety standard for cosmetics by clarifying the current regulatory requirement of "adequate substantiation of safety" in the Federal Food, Drug and Cosmetic Act and stating whether the agency will consider products that contain ingredients banned in other countries or whose directed use violates industry panel recommendations to be safe.
2. Ensure that all personal care products on store shelves are not hazardous to consumers.
3. Guarantee that all meetings regarding cosmetics safety policy are open and accessible to the public.

Until the FDA takes such positive actions, it will be up to consumers to protect themselves. Here's our list of tips:

- Go easy on these products in the first place. Makeup is unnecessary as are the vast lion's share of health and beauty items. Other more essential products can be used sparingly.
- Don't let kids or adolescents use nonessential products. This includes makeup, nail products, hair styling products, perfumes, and skin creams. For maximum safety, apply this standard to yourself, too!
- Scrutinize labels carefully, and take a precautionary approach to ingredients. Avoid products that list hard-to-pronounce chemicals or are obviously made largely of synthetics. These materials may be safe, but unless you know for sure skip the purchase. Look for products that contain natural ingredients only or contain a bare minimum of synthetic materials.
- In general, when it comes to cosmetic and personal care product ingredients, less is more. Choosing products with the fewest possible components is a good precautionary strategy.

Hazardous Waste Information: Cleaning Products

The average household contains anywhere from 3 to 10 gallons of toxic materials, most of which are hiding in the cleaners we use. These materials fill the air inside our homes with hazardous fumes and leave unhealthy residues on household surfaces. Unfortunately, cleaning products are not required to list ingredients on their labels so we have no concrete way of knowing how hazardous a particular product is. Instead, we must rely on labels that use words like 'Warning,' 'Caution,' 'Danger,' or 'Poison.' And even then, not all hazardous cleaners will offer such warnings. In 2000, cleaning products were responsible for nearly 10% of all toxic exposures reported to U.S. Poison Control Centers, accounting for more than 206,000 calls, over half of which were about children under the age of six.



Chlorine Free

Many household cleaners contain hazardous chlorine. This dangerous toxin often masquerades behind aliases such as "sodium hypochlorite," or just "hypochlorite," or in chlorinated compounds that can be identified on product labels by the use of "chlor" in the chemical's name. In 2001, poison control centers received 51,815 reports of household exposures to chlorine, more than any other chemical.

Whether found alone or in a mixture of other chemicals, household products that contain chlorine pose a number of serious health risks. These products typically include automatic dishwashing detergents, non-oxygen laundry bleach, disinfectant cleaners, mildew removers, and toilet bowl cleaners. Breathing in the fumes of cleaners containing high concentrations of chlorine can irritate the lungs. This is particularly dangerous for people suffering from heart conditions or chronic respiratory problems such as asthma or emphysema. And the risks are compounded when the cleaners are used in small, poorly ventilated rooms, such as the bathroom. Chlorine is also a highly corrosive substance, capable of damaging skin, eyes, and other membranes. Using dishwasher detergents that contain chlorine can pollute the air in your home. Hot water in these machines transfers the chlorine from the detergent to the air through a process called volatilization. Chlorine gases are then released in a steamy toxic mist when the machine door is opened after washing.

Whenever chlorine is used in the home, it typically ends up getting washed down the drain by

the person or machine who used it. In this way, chlorine enters the environment. Once there, it easily reacts with naturally occurring organic materials, like rotting leaves, in water and soil to create carcinogenic compounds called trihalomethanes, or chloroform, which poison our environment and harm human health.

Whether you use it for household cleaning or laundry bleaching, consider replacing chlorinated cleaners with safer alternatives. Since chlorine is primarily used as a sanitizing or bleaching agent, such strategies can include the substitution of sanitizing agents with products made from hydrogen peroxide, and bleaches that use oxygen or peroxide.

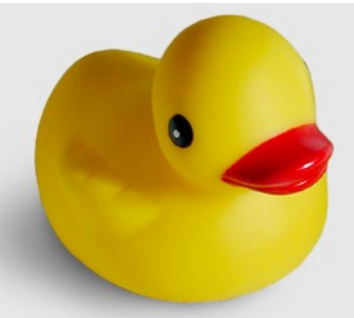
To detoxify your house, replace cleaners that are toxic. Either use them up and purchase safer alternatives or take the material to a household hazardous waste event. Call your local Republic Services office for more information.

When you buy new cleaning products, look for manufacturers that list their natural ingredients on the label and purchase cleaners containing non-petroleum-based surfactants, that are chlorine and phosphate free, that claim to be "non-toxic" and that are biodegradable. These products often clean as effectively as their petrochemical counterparts, but don't pollute your home in the process. Awareness of this issue is growing, and product lines of environmentally sound cleaning products are available in natural foods stores, online, and in many supermarkets. A note of caution: some cleaners may advertise that they are "environmentally sound," but will fail to provide a full list of ingredients. Remember, the manufacturer that gives you the most information about its product is usually a manufacturer you can trust.

Source: Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com

Hazardous Waste Information: Children's Toys

The last thing you would expect to be toxic would be a child's toy. Yet, many of our children's toys are manufactured with materials which, if found in a landfill, would be considered toxic waste. Many toys (including Barbie dolls) are made of polyvinyl chloride (PVC), a chlorinated plastic whose production and disposal creates large amounts of highly toxic wastes. More importantly, PVC requires the use of plasticizing chemicals called phthalates to keep it flexible and soft. Recent studies have clearly shown that the phthalate plasticizers in PVC toys are easily transferred to the bodies of the children who play with them when those children put the toys in their mouths or inhale the minute amounts of volatile phthalate fumes PVC products routinely emit.



phthalates are being used in children's products at levels as high as 33% of some products' total weight. Although the Consumer Products Safety Commission has requested that toy manufacturers cease using polyvinyl chloride, many PVC toys are still on the market.

The best option is to purchase non-plastic toys. That may be seen by some parents as unrealistic given today's toy market, so if you do buy plastic toys, look for toys made from polyethylene or polypropylene, both of which are nonchlorinated. Writing letters of concern to manufacturers that still use PVC is an effective way to ensure safer toys in the future.

Source: Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at: www.seventhgeneration.com

This news is troubling because recent studies have linked exposure to phthalates to reproductive and developmental disorders, cancer, and organ damage. According to Greenpeace, children are exposed to a variety of these plasticizers via vinyl childcare products like toys. Product testing by researchers showed that

Hazardous Waste Information: Healthier Pet Care

Just as ridding our homes of toxic products will have a salutary effect on our health, an awareness of toxic chemicals in pet care products can protect our animal friends as well. Here are a few tips to care for "man's best friend":

- ◆ Flea bombs, collars, powders, sprays and shampoos all contain pesticides – nervous system poisons that are hazardous to animals and humans alike. To make your pet flea-free, rubbing its fur with cloves or citrus, eucalyptus or pennyroyal oils is another way to repel fleas.
- ◆ Toxic carpets and flooring are much more dangerous to pets than humans because they spend so much time lying on the floor. Replace them if you can. And provide a soft bed that prevents direct contact with floors.
- ◆ Lawn chemicals pose an equally serious problem. Although you may not use them, your pet may encounter them on neighbors' lawns. As you walk your dog or let your cat out, be aware of lawns posted with signs from recent sprayings. If your pet encounters a sprayed lawn, thoroughly rinse your pet

with clean water as soon as possible.

- ◆ It is not surprising that most pet food is generally of very low quality and full of chemicals and additives. Like humans, pets benefit from a diet of fresh meat, fruits and vegetables (organic if possible). Unlike humans, your pet will benefit from these foods if they are eaten raw. Studies have shown generations of cats fed raw meat over the course of a decade enjoyed much better health than cats fed cooked meat.

Source: Seventh Generation (2004) "The Seventh Generation Guide to a Toxin-Free Home". Online. Internet. March 25, 2005. Available at:



Hazardous Waste Information: Housecleaning Made Cleaner

Could your housecleaning actually be dirtying the environment? Here are some tips on choosing household cleansers that will help keep your home both clean and "green."

Avoid harmful ingredients. Though they might not bear a warning label, many household cleansers contain ingredients that pose problems for the environment and public health.

- ◆ **Petroleum:** Many conventional detergents ("surfactants"), solvents, and polishes contain paraffin, mineral oil, diethylene glycol, perchloroethylene, or butyl cellosolve--all of which are derived from petroleum. Extraction and refinement of this nonrenewable resource contribute to air and water pollution.
- ◆ **Phosphates/EDTA:** Phosphates, which have traditionally been used in detergents to soften water and increase cleaning power, encourage algae growth in waterways, depriving marine life of oxygen. EDTA, a common substitute for phosphates, degrades slowly in the environment.
- ◆ **Phthalates:** Manufacturers of many cleaning products use phthalates to prolong their products' scent. However, these chemicals have been linked to cancer and disease of the reproductive system in laboratory animals.
- ◆ **Antibacterial agents:** The use of cleansers containing antibacterials such as triclosan and benzalkonium chloride could be contributing to an increase in antibiotic-resistant bacteria, resulting in human illnesses that are more difficult to treat.
- ◆ **Chlorine bleach:** This popular whitener and disinfectant can harm the environment by contributing to the formation of organochlorines (chlorine-carbon compounds) such as the chlorofluorocarbons that damage Earth's

ozone layer.

Choose "greener" alternatives. It's possible to give your house an adequate cleaning without harmful chemicals. Look for products that contain environmentally friendly ingredients such as:

- ◆ **Citrus- and plant-based oils.** Natural oils can be used as degreasers (orange, lemon), disinfectants (tea tree, eucalyptus), and polishes (olive). They also freshen the air at the same time.
- ◆ **Sodium carbonate, sodium bicarbonate, sodium citrate, and sodium silicate.** These compounds work like phosphates and EDTA to soften water, but without the harmful impact.
- ◆ **Enzymes.** Natural drain openers use digesting bacteria and enzymes to eat through most clogs.
- ◆ **Non-chlorine bleach.** These products use oxygen to whiten and brighten clothes.

Make your own. Items on your kitchen shelves can serve as effective cleansers--at a fraction of the cost of brand-name products. A paste of baking soda and water, for example, is good for scouring, while diluted white vinegar will clean windows and kill bacteria, mold, and viruses. Other ideas are available online (see the links below).

Source: Greentips (2005) Housecleaning Made Cleaner" Online. Internet. November 28, 2005.

For more information:

- ◆ Household Products Database--Health and Safety Information
<http://householdproducts.nlm.nih.gov/>
- ◆ Eco-labels--find out what the labels on your favorite products really mean
<http://www.greenerchoices.org/eco-labels/eco-home.cfm?redirect=1>
- ◆ Health Notes by Evelyn Ames--Antibacterial Household Products
<http://www.wvu.edu/wwura/0810.pdf>
- ◆ EPA Fact Sheet--Safe Substitutes At Home
http://www.omasgartenpflanzen.com/Safe_Substitutes_At_Home.pdf
- ◆ Eco-cycle--Eco-friendly Cleaning Recipes
<https://www.ecocycle.org/hazwaste/ecofriendly-cleaning>
- ◆ Healthfacts--How to Keep Your Home Clean — but Not Toxic
<http://www.beliefnet.com/healthandhealing/getcontent.aspx?cid=100542>



PVC

POLYVINYL CHLORIDE - AN ENVIRONMENTAL CONCERN

The manufacturing, incineration and recycling of PVC, or polyvinyl chloride, produces a persistent bioaccumulative toxin called dioxin. This means that it doesn't break down and accumulates in animals through the food chain. PVC is used for a wide range of consumer products and industrial processes. It is used for packaging such as cling film, bottles and vacuum packs. In the construction industry, PVC is used for window frames, paneling, pipes, gutters, and cables. Around the home, it is found in food wraps, toys, flooring, wallpaper, blinds, shower curtains and garden furniture. In the office, PVC is found in furniture, binders, folders and pens. It is used in the vehicle industry for car interiors; in hospitals for medical disposables, including IV bags and tubes; for imitation leather, for credit cards, and for scores of other products. The presence of PVC may or may not be identified by the number 3 in a small triangle somewhere on the product. The annual global production of PVC is about 20 million tons.

In recent years scientific research has demonstrated that hormone-disrupting chemicals may cause potentially serious damage to wildlife and to public health. There are two main groups of hormone-disrupting chemicals associated with PVC: **dioxins** and **phthalates** (pronounced *thal*-ates).

Dioxins are formed as a by-product of the production, disposal and combustion of PVC. In addition, **dioxins** are emitted when PVC is burned (either deliberately by incineration or accidentally in fires) or is recycled (for example, when a PVC-coated copper wire is recycled).

Approximately half of the PVC created is processed with **phthalates**. **Phthalates** are loosely bound chemicals that are mixed with PVC to soften it and make it flexible. **Phthalates** easily leach out of the plastic. Like **dioxins**, **phthalates** can be released during the manufacturing process, during the processing of plastics that contain them, during the product's life and after it has been disposed. Concern about the biological effects of **phthalates** leaching from PVC has been growing. More than 3 million tons of **phthalates** are produced globally each year. 95 percent of this production is made specifically for use in PVC.

Reducing the risk of exposure to hormone-disrupting chemicals from PVC depends on reducing the amount of PVC produced. While recycling PVC keeps it from entering a landfill where the **dioxins** might leach into the groundwater, the recycling process also releases the toxins into the environment and thus perpetuates the problem. Regulating emissions from the production process is only a partial solution, since both **phthalates** and **dioxins** are released at all stages of PVC production, manufacturing and disposal.

You can reduce the effects of **dioxins** and **phthalates** on public health and the environment by reducing the amount of PVC used and by disposing of PVC properly. By using alternatives, you can lower your exposure to PVC and its related health hazards. Fortunately, there are alternatives to PVC packaging for almost every use, such as the use of glass or polyethylene bottles (PET, HDPE - #1 or #2).

For more information on PVC:

-[Blue Vinyl](#) video documentary directed by Daniel B. Gold and Judith Helfand
Our Stolen Future. Theo Colborn, Dianne Dumanoski and John Peterson Myers.

Source: Hannah Burton, Master Recycler - Portland

Chapter VI Hazardous Products in the Household

Eliminating Hazardous Chemicals

PREFLECTION – Think about the use of hazardous substances.

Where do you encounter hazardous chemicals for cleaning apart from your home?
Where at home might you find hazardous products other than under the sinks?
What news stories do you recall about health risks associated with home cleaners?

ACTION – Conduct a home audit of hazardous products.

Make a list of bottles/jars/tubes under your kitchen and bathroom sinks that have the word *danger*, *warning*, or *caution* on their labels.
Spend some time in the garage looking for jars and cans whose labels include the words *flammable*, *corrosive*, *reactive*, *explosive*, *toxic*, *poison*, *volatile*, *combustible*, or *caustic*. Add these garage items to the list.
Make a foray to the lawn shed with the list and add to it.
Browse the web or visit a store to find alternatives to these products.

REFLECTION – Ask yourself these questions:

Do I really believe that non-hazardous products do the job as well as hazardous ones?
How does my concern for the health of those in my household impact my decisions?
How are the impacts to water, soil, and air weighted in my decisions about product purchases?

RE-ACTION – Take steps to eliminate household hazardous products.

Choose two *safe* cleaning products to try as replacements for hazardous ones you currently use.
Mark the date of the next hazardous waste event on your calendar.
Prepare the hazardous products for disposal as recommended by your waste management company.

INVOLVE CHILDREN

Talk about the meaning of the words flammable, corrosive, and toxic.
Look for symbols on bottles and cans that indicate hazardous chemicals.