

Alternatives

A Washington Toxics Coalition Fact Sheet



Safer Cleaning Products

by Philip Dickey



DANGER:
Corrosive
May burn skin or
eyes. Harmful or
fatal if swallowed.

Keeping your home clean helps to reduce exposure to dust, molds and mildew, and germs. A clean home is better for your health than a dirty home. But some cleaning products can also cause health problems themselves.

In choosing cleaning products, it is important to consider both health and environmental hazards. For example, a drain cleaner may be very hazardous to use but have little effect on the environment once it goes down the drain. A dishwasher detergent with phosphates may pose little hazard to the user, but when it goes down the drain the phosphates can create water quality problems. The best products are both safe to use and safe for the environment.

Health Hazards

■ Poisonings

Cleaning products are frequently involved in home poisonings. Most households have them and they are too often kept within reach of children. In addition, some cleaning products look like food. Compare jars of Comet Cleanser and Kraft Parmesan Cheese. Other cleaning products, such as lemon oil furniture polish, smell like food. Some cleaning products (like drain cleaners or spot remover) are very dangerous if accidentally swallowed, but many others are unlikely to cause serious injury.

The large number of poisoning incidents involving cleaning products does not mean that these products are more toxic than other household products. It's just that they are more often swallowed. While it is important to choose the least toxic cleaning products you can, even they should be kept safely stored away from children's reach.

■ Three to Avoid

The three most dangerous cleaning products in the average home are probably drain cleaners, oven cleaners, and acid-based toilet bowl cleaners. Most of them are labeled "DANGER. Corrosive." Corrosive products can severely burn skin or eyes. If accidentally swallowed, a corrosive product could cause internal burns. Many corrosive products also can react violently if mixed with other products. Some rust removers are also corrosive.

Most cleaning products can irritate skin or eyes, but only corrosive products cause burns. There is no reason to have corrosive products in the home. Safer alternatives exist for all of them (see Suggestions in the center of this fact sheet).

■ All Choked Up

Also very dangerous if accidentally swallowed are products that contain solvents. Most solvent-based products are not cleaners—gasoline, kerosene, lighter fluid, oil-based paints and paint removers, and many automotive products contain solvents. A few cleaning products are also solvent-based: some furniture polishes, dry cleaning fluids or spot removers, and some metal polishes. These products will be labeled: "DANGER. Harmful or fatal if swallowed."

If a solvent-based product is swallowed, it can be sucked into the lungs, where it coats the lung surface and causes a pneumonia-like condition that can be fatal. Some solvent-based products can be replaced with water-based products that do the same job.

■ Bleach and Ammonia Don't Mix

One of the most common home accidents is the mixing of products containing chlorine bleach with those containing ammonia. A chemical reaction occurs, and a gas called "chloramine" is produced. Chloramine gas is highly irritating to the lungs, and causes coughing and choking. Chlorine bleach also produces dangerous chlorine gas if mixed with an acid product like a toilet bowl cleaner or rust remover.

The most common household chemicals containing bleach or ammonia are chlorine laundry bleach and household ammonia. Chlorine bleach is also found in automatic dishwasher detergents, mildew stain removers, and some bath and toilet cleaners. Ammonia is found in glass cleaners, metal cleaners, and dishwashing liquids. Check product labels for warnings against mixing products together. There are many effective cleaners that do not contain bleach or ammonia.

■ Breathe Easy

Products containing bleach or ammonia are usually recognizable by their strong odors. Bleach and ammonia are highly irritating to the lungs. They should not be used by people with asthma or with chronic lung or heart problems. Sometimes manufacturers cover up the strong odors of these products with a lemon or "fresh" scent. This is a bad idea because the unpleasant odor is a warning signal that the product is harmful to breathe.

Also hazardous to inhale are solvent-based spot removers. Used with poor ventilation they could cause health problems, and any use reduces indoor air quality.

Although fragrances are not usually considered toxic in the amounts found in cleaning products, many people cannot tolerate fragrances in air fresheners, perfumes, fabric softeners, and cleaning products. Some products are now available without fragrances for those who prefer them. Air fresheners should not be needed. It's better to find sources of unpleasant odor and remove them. You can also "freshen" air by opening windows to bring in cleaner outside air.

Environmental Hazards

■ Phosphates

Phosphates are minerals that act as water softeners. Although they are very effective cleaners, phosphates also act as fertilizers. When cleaning products go down the drain, phosphates can be discharged into a river, lake, estuary, or ocean. In lakes and rivers especially, phosphates cause a rapid growth of algae, resulting in pollution of the water. Phosphates can be removed during wastewater treatment by the addition of special chemicals, but the process is expensive. Many states, including Washington, have banned phosphates from household laundry detergents and some other cleaning products.

Automatic dishwasher detergents are usually exempt from phosphate restrictions, and most major brands contain phosphates, but some phosphate-free alternatives are available (see Suggestions at the right). Hand dishwashing liquids do not contain phosphates.

■ Petroleum-based Ingredients

The key ingredients in most cleaners are the detergents themselves, called surfactants. Most surfactants are petroleum-based. Some products advertise ingredients made from coconut or other vegetable oils. Although it is possible to make some kinds of surfactants entirely without petroleum, most surfactants, even those that claim to be made from vegetable sources, are at least partially petroleum-based. The primary advantage of vegetable oils is that they are renewable resources. Petroleum is a limited resource whose extraction and refining produce pollution. This pollution may be partially offset by pesticide use and other impacts of producing vegetable oils. Driving a long distance in your car to get petroleum-free products could cancel any advantage they offer.

Some Suggestions for Safer Products

Dishwasher detergent

Bi-O-Kleen (PC*); Life Tree (PC*); Country Save (P*); Seventh Generation (PC*)

**P=no phosphate; C=no chlorine bleach*

Drain cleaner

Mechanical methods (plumber's snake, plunger, hose-end bladder); install drain screens to keep hair out; enzyme-based buildup remover or boiling water as prevention.

Dusting

Vacuum floors weekly with a power-head vacuum; dust furniture with a damp rag; to reduce dust in the home, remove shoes at the door or use good door mats at all entrances.

Furniture polish

Almond oil on unvarnished furniture; Parker's Lemon Oil; Howards Orange Oil

Laundry bleach**

Clorox 2; Ecover; Seventh Generation; Arm & Hammer; Country Save

**** These bleaches do not disinfect.**

Oven cleaner

Prevent spills by placing pan or foil under casseroles and pies; Easy-Off Non Caustic Formula; or use a self-cleaning oven.

Scouring powder

Bon Ami Cleanser; baking soda; Soft Scrub (get the one without bleach)

Spot remover

Enzyme presoak; stain stick; dishwashing liquid, glycerine, or water can be used on some stains. Consult reliable reference on how to use them.

Toilet bowl cleaner

Bon Ami Cleanser; Toilet Duck; Ecover Toilet Cleaner; pumice stone for rust stains; clean weekly.

A Few Favorite Recipes

Deodorizer

To absorb off odors in the refrigerator, keep an open box of baking soda inside, replace from time to time. To keep garbage from smelling, sprinkle a little baking soda on top layer by layer (and empty frequently!)

Drain cleaner

Pouring a kettle of boiling water down the drain will often free up a slow drain, especially if the clog is grease-based. Try to direct the water only into the drain rather than onto porcelain surfaces. (Be extremely careful when carrying hot water around the house.) Many books suggest putting equal amounts of baking soda and then vinegar down the drain first and letting them bubble to loosen clogs before pouring the hot water in. This may help in some cases but is not always effective.

Scouring powder

Sprinkle a little baking powder on a damp sponge and use as you would any scouring powder on kitchen counters, appliances, sinks, bathtubs, etc. For tough dirt, a couple of drops of liquid soap (without antimicrobial) will add cleaning power.

Window cleaner

Vinegar (1/4 cup in quart of warm water); use lint free rag and squeegee dry.

Cleaning with Baking Soda

Baking soda has many uses besides baking. It absorbs odors, neutralizes acids, and provides mild abrasion. For additional ideas, visit <http://www.armhammer.com/myhome/>

■ Biodegradability

Many ingredients in cleaning products are toxic to fish and other animals that live in the water. After you use a cleaning product and wash it down the kitchen sink, most of these ingredients should break down into harmless substances during waste treatment. Actually, most modern cleaning products are designed to biodegrade relatively quickly. Are products advertised as biodegradable any better for the environment than those that don't make such a claim? Probably not. There really isn't any reliable way for you as a consumer to evaluate the biodegradability of a product.

Surfactants made from vegetable oil are not necessarily more biodegradable than those made from petroleum. However, there is one type of petroleum-based surfactant sometimes used in cleaning products that has rather poor biodegradability. It is called nonylphenol ethoxylate. You will rarely see this ingredient listed on cleaners, even if it is present. But if you do see it listed, you might want to avoid the product. Nonylphenol ethoxylates, and their relatives octylphenol ethoxylates, are widely used in hair colors, shampoos, and hair styling aids. They are often identified as nonoxynol or octoxynol. Nonoxynol-9 is also commonly used as a spermicide.

■ The Chlorine Issue

The use of chlorine compounds in consumer products usually does not justify the risks involved. Particularly dangerous are compounds called organochlorines, which are generally toxic and persistent in the environment. To my knowledge, few household cleaners sold today contain organochlorines as ingredients.

Many household cleaners do contain chlorine bleach. Chlorine bleach, or sodium hypochlorite, is not an organochlorine. It is hazardous, however, because it is reactive and a lung and eye irritant. Products containing chlorine bleach usually contain trace amounts of organochlorines that cause cancer in animals and are expected to do so in humans. Small amounts of organochlorines are also formed whenever chlorine bleach is used, although most of the bleach does break down into salt water.

So, should you give up your chlorine bleach? Not necessarily, but responsible use of bleach means minimal use. Other types of bleach are available that are a bit less hazardous, but none of them can be used to disinfect. (For more information on disinfectants, see our companion fact sheet entitled *Antimicrobials, Who Needs Them?*) It makes sense to avoid cleaning products with chlorine bleach in them. They make it hard to limit your chlorine use. Disinfection, if needed, can be done separately.

Buying Safer

■ Reading Labels

You can learn something about the hazards of a cleaning product by reading the label. Product labels contain a signal word, such as CAUTION, WARNING, or DANGER. Typically, products labeled DANGER or POISON are the most hazardous. Those labeled CAUTION or WARNING pose a medium hazard. Products with no signal word are not considered hazardous by the federal government. This does not mean that they are entirely free of hazardous chemical ingredients, but the amounts are considered too low to be of concern. Most cleaning products are labeled CAUTION because they are skin or eye irritants, but you will find the DANGER label on drain cleaners, oven cleaners, toilet cleaners, rust removers, furniture polishes, metal cleaners, and some other solvent-based products.

Near the signal word will be a phrase that describes the nature of the hazard, such as "causes burns on contact," vapors harmful," or "extremely flammable." Learn to recognize these phrases and take them seriously. On the side or the back of the package you may find additional information on how to use the product. This information can help you avoid injury. If you are not comfortable with the hazard described on the label, buy another product instead.

■ Alternatives

There are less hazardous alternatives to many cleaning products. Most are commercial products you can buy at the store. You may also choose to make your own cleaners from common ingredients like vinegar, baking soda, and salt. For a list of less hazardous substitutes for cleaning products, consult the Suggestions section on the middle two pages of this fact sheet. To reduce the use of hazardous products, only use heavy-duty cleaners for heavy-duty jobs.

■ Making Your Own Cleaners

There are some good reasons to make your own cleaning products. Homemade cleaners can be less expensive than commercial ones, and you know exactly what is in the products. But there are some potential dangers to kitchen chemistry. If you choose to mix your own cleaning products, be careful. Follow these guidelines:

1. Only mix ingredients as directed by a reputable source. Avoid recipes with hazardous ingredients such as bleach, ammonia, alcohols, turpentine, etc.
2. Never mix products containing chlorine bleach and ammonia, or chlorine bleach and a strong acid.
3. Try to avoid mixing up more product than you can use at one time. That way you avoid having to store products.
4. If you do store homemade cleaners, always mark your containers, saying what the product is for and what it contains. This is important in case a child should accidentally drink some of your concoction and you need to tell the poison center what it contained.
5. Keep all cleaning products out of reach of children.
6. If a homemade cleaner is so ineffective that you need to use very large amounts to do a job, consider discontinuing its use. Extremely ineffective products waste resources and may actually be more polluting than commercial products. Many homemade cleaners are surprisingly effective, however.

■ “Green” Products

In recent years there has been a trend towards products marketed for their environmental qualities. They may claim to be non-toxic, environmentally safe or environmentally friendly, recycled, biodegradable, or all of the above. The claims may be true, or they may not. Remember that the production of any product places a burden on the environment. The best products are just those that are least damaging.

Be skeptical when shopping. Look for products with specific rather than general claims. For example, “90% biodegraded in 3 days” means more than just “biodegradable.” “Contains no phosphates” is more specific than “environmentally-safe.” If the product seems too good to be true, perhaps it is.

Look for contradictory claims. If the product says “non-toxic” on one side and “vapor harmful” on the other, something is wrong. Be particularly wary of salespeople who claim their product is so safe they drink it. Their judgment may be impaired. Besides the fact that drinking cleaning products is seldom advisable, low oral toxicity doesn’t prove that a product is without hazards.

Is there such a thing as a “non-toxic” product? Any chemical is toxic if you ingest enough of it. However, the government has set benchmarks for toxicity, and a product is generally considered not toxic if the lethal dose is greater than 5 grams per kilogram of body weight. That works out to about 2 ounces for a 25 lb child or 12 ounces (3/4 pound) for a 150 pound adult. You can see why we suggest keeping all chemical products out of reach of children. Two ounces is really not very much. ■

The Washington Toxics Coalition is a non-profit organization dedicated to protecting public health and the environment by identifying and promoting alternatives to toxic chemicals. For more information, write to Washington Toxics Coalition, 4649 Sunnyside Ave N, Suite 540, Seattle, WA 98103, or phone 206-632-1545. Visit our Internet Web site at www.watoxics.org.

Disposal of Cleaning Products

Not all unwanted cleaning products need to be disposed of as hazardous waste. The best disposal for most cleaning products is to use them up gradually as directed or give them to someone who can. Still, there are times—such as when you move to another home—when you may have a large quantity of products to dispose of or may inherit products you don’t want to use. The following are recommended disposal practices in Seattle/King County:

Drain openers, oven and toilet bowl cleaners, bleach:

Use up according to label directions or offer to others who can use them. Dispose of small amounts by pouring down drain with lots of water.

Furniture polish, spot removers, flammable metal polishes:

Use up according to label directions or offer to others who can use them. Or take to household hazardous waste collection site.

Other cleaning products:

Most cleaners that would go down the drain anyway when used can be disposed of in small amounts by pouring down the drain with lots of water.

For More Information

If you have any question about how or where to dispose of a product, contact your local household hazardous waste agency. In Seattle/King County, call the Hazards Line at 206-296-4692 or 888-TOXIC-ED. Statewide in Washington, call 1-800-RECYCLE.

Poison Center

From Anywhere in United States:
800-222-1222

The Washington Toxics Coalition assumes no responsibility for any injury or damage resulting from the use or effect of any product or information specified in this publication. Mention of particular products by name does not constitute an official endorsement.