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# Using and Replacing Hazardous Household Substances

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Many consumers falsely believe that hazardous or toxic chemicals are found only in industries that manufacture plastic, pesticides, pharmaceuticals, or automobiles. However, many products we use in our homes contain chemicals that are by definition hazardous or toxic. Hazardous products, such as cleanser, paint thinner, used car batteries, polishes, glues, and insecticides, line our kitchen, bath, utility, and garage shelves. In most cases, the chemicals are less concentrated in household products than in industrial products yet the potential for chemical exposure in the home exists. Today, most households contain relatively harmless substances, which can combine to effectively replace a hazardous product.

## Is It Hazardous?

The U.S. Environmental Protection Agency (EPA) defines a substance as hazardous if it is flammable, can react or explode when mixed with other substances, is corrosive, or is toxic.

Check the label. Many household products used for cleaning, car care, or yard care are toxic, corrosive, flammable, or reactive. Signal words on the label are "CAUTION," "WARNING," or "DANGER." CAUTION indicates the lowest level of toxicity while DANGER is the highest level.

## Household Cleaners

Why do we use potentially hazardous products? Time and convenience are the primary reasons. In days past, sinks were scrubbed with baking soda but required extra effort to stay stain-free. Wood floors were cleaned with oil and vinegar or just mineral oil. This eliminates the need for wax, but requires more work.



Misusing or improperly disposing of these hazardous products poses a health threat. Long-term or cumulative problems, such as contamination of drain fields, septic systems, and surface and groundwater, can also occur. To decrease exposure to pollutants, and produce less hazardous household waste, we should consider using alternative products that are relatively free of toxic effects.

Many common household cleaners contain caustics or solvents, which when handled improperly, could threaten our family's health or harm the



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## Reducing the Need for Hazardous Products

An aggressive home maintenance plan will reduce the amount of cleaning products and hazardous products needed. For example, good housekeeping practices will discourage roaches and other insects.

- Store food in sealed containers.
- Wipe up spills.
- Put a piece of screen over sink drains to prevent food particles or hair from clogging drains.
- Avoid baked-on oven stains by wiping up after each use, using liners to catch spills, or both.
- Air out the house occasionally to avoid using chemical air fresheners.

By testing alternatives for hazardous products you can reduce handling, use, and disposal hazards associated with dangerous household products. Some of these alternatives are as simple as using a flyswatter instead of pesticide or immediately mopping up spills with water or club soda. Full-strength vinegar or lemon juice

applied to rust stains or hard water deposits will fade and possibly eliminate the stain. In some cases, these alternatives may require more effort to achieve the desired results.

Reducing the number of hazardous products you purchase may cut costs, save you from storing products for any length of time, or eliminate the threat of accidental exposure and contamination. You may decide to use latex water based paint instead of oil based, scrub your sink with baking soda rather than a commercial cleanser, or spray your plants with a mixture of pepper water and garlic instead of pesticide. Once you have experimented with substitutes, formulas, and procedures, you can make your own decisions about tradeoffs. Most households have the basic ingredients to prepare substitutes for some hazardous household materials. (For more information, see *Making the Switch — Alternatives to Using Toxic Chemicals in the Home* available from the Golden Empire Health planning center.)

environment. Corrosive chemicals, such as those found in oven cleaners (lye, sodium hydroxide), drain cleaners, scouring powders, or bleach, can burn and severely damage skin and eyes.

Solvents are fast-drying substances that dissolve another substance. Inhaling these vapors or accidental ingestion can be harmful, even fatal. Long-term exposure to some solvents may cause liver and kidney problems, birth defects, central nervous system disorders, and cancer. Furniture polish, silver cleaner, paint remover, and wood floor wax all contain solvents.

### General Rules for Managing Toxic Household Products

Read the label for disposal of hazards before using the product. Carefully follow use, storage, and disposal directions. In most cases, there will be no specific directions for disposing of any leftover product. It is best to use all of the product according to the directions or share with a friend. If you need to separate any portion of the product from its

original container, be sure to duplicate the label in its entirety and attach it to the new container.

- Select the least toxic products for your home. Read the product label for a list of ingredients.
- Buy only as much as you will use to avoid storing hazardous products for any length of time.
- Avoid using aerosol spray cans whenever possible as not all recycling centers accept them. Buy liquid, paste, or powder forms of products.
- Dispose of toxic waste as recommended on the label. (For further information, consult the publication, *Hazardous Waste, What You Should and Shouldn't Do*, available from your local Extension agricultural agent.)

### Evaluating Alternatives for Hazardous Products

Some kitchen chemicals, such as washing soda, ammonia, and even vinegar can irritate eyes and skin. In addition, some may be harmful if accidentally swallowed. Handle mixtures of these chemi-





calls with the same care as when handling commercial cleaners. If combining chemicals at home, ask the following questions:

- **Is the mixture stable?** Mixing seemingly harmless ingredients can sometimes lead to potentially dangerous reactions. For example, mixing chlorine bleach with ammonia will form chloramine, a toxic gas. Chlorine bleach and chlorine bleach products, such as tile cleaners and automatic dishwasher detergents, react with acidic products, such as toilet bowl cleaners and rust removers, to produce toxic chlorine gas.
- **Is the mixture stored in a container inaccessible or unattractive to young children?** When easily available, familiar household containers may invite accidents.
- **Is the container labeled properly?** Home mixture containers should always be labeled with their contents to help avoid improper use. Include directions, ingredients, human safety information, storage and disposal information. This will not only ensure that the product is used correctly, but will provide crucial safety information in case of accidental exposure.
- **Is the container safe, easy to use, recyclable, reusable, or both?** If the container is being used for a purpose other than the original, it may not be safe or effective for a home cleaning mixture.
- **If the cleaner is accidentally ingested or splashed in the eye, what is the appropriate treatment to minimize injury?**
- **Is the mixture effective, easy to use, and economical?** Some formulas call for mixing vinegar, an acid, with ammonia, a base. Equal amounts of the two create a mix with no cleaning properties because the acid and the base neutralize each other. Even if the formula calls for more vinegar or more ammonia, the one in excess provides only a small amount of extra cleaning power, and the other is neutralized and wasted. If the mixture is not effective and easy to use, you may not use it. Costly mixtures may prohibit using the mixture regularly.
- **How much is required to get the job done satisfactorily?** Is this amount less of an environmental burden than a commercial household cleaner? Does the mixture have an environmental benefit? Some home formulas require up to 10 times the amount of chemicals for the cleaning task as a commercial cleanser; this may mean a greater environmental burden.
- **What impact does the packaging have on the solid waste disposal system?** Multiple packages of ingredients for home formulas can produce more packaging waste than a single container of a commercial household cleaning product.
- **Which chemicals are safe for which surface?** Reputable manufacturers will state on the package label exactly which surfaces their product is safe for and how to use it safely. Most do not give recipes for using their products in combination with other household ingredients. If you have a recipe that combines ingredients, one good source of information is the manufacturers — contact them to see if they recommend the mixture or if there are any hazards associated with using their products in this manner. You can usually find their phone number or address on the label.
- **Should I include food products in my mixture?** Some food products (like ketchup, mayonnaise, yogurt, sour milk) may have some mild cleaning effect, but they can also breed bacteria causing microbial growth on surfaces. This means they may actually promote the growth of disease-causing organisms. Their use for cleaning is not recommended.



## Information Sources

- Chemical Information Center, toll free, 1-800-262-8200, 9:00 a.m. - 6:00 p.m. (Eastern) Monday-Friday. Information about proper use and possible side effects of chemical ingredients in cleaners, household products, pesticides, and fuels.
- Chemical Referral Center, c/o Chemical Manufacturers Association, 2501 M Street, N.W., Washington, D.C. 20037 (202-887-1318). A brochure listing services provided free.
- Clinical Toxicology of Commercial Products. 1984. Robert Gosselin, et al. Baltimore, MD: Williams & Wilkins.
- Disposal: Do It Right — Managing Household Wastes. The Household Products Disposal Council, 1625 Eye Street, N.W., Suite 500, Washington, D.C. 20006. This is an information service established through the Chemical Specialties Manufacturers Association. Both an old pamphlet and a 16-page booklet are available free of charge.
- Florida, State of the Environment. Florida Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, FL 32399-2400 (904-488-9334) Free.
- Household Hazardous Waste: Solving the Disposal Dilemma. Gina Purin, Golden Empire Health Planning Center, 2100 21st Street, Sacramento, CA 95818.
- Hazardous Wastes from Homes. Florida Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, FL 32399-2400; or order from Enterprise for Education, 1320A Santa Monica Mall, Santa Monica, CA 91401. Single copies are \$2.75 plus \$1.50 for postage and handling. Discounts available on quantity orders.
- Hazardous Household Waste, What You Should and Shouldn't Do. 1984. Water Pollution Control Federation, your local county Extension office. A colorful, easy-to-read chart that establishes the most effective means of disposing of household waste. 25¢ per copy.
- House Dangerous. Ellen J. Greenfield, Foreword by Ralph Nader. 1987. New York, NY: Vintage Books, a division of Random House.
- Know Your Chemicals, Alternatives and Precautions. Florida Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.
- Making the Switch — Alternatives to Using Toxic Chemicals in the Home. Golden Empire Health Planning Center, 2100 21st Street, Sacramento, CA 95818 (916-731-5050).
- Nontoxic and Natural: How to Avoid Dangerous Everyday Products and Buy or Make Safe Ones. Debra Lynn Dadd. Nontoxic Lifestyles, Inc., Box 210019, San Francisco, CA 94121.
- Why Your Home May Endanger Your Health. 1980. Alfred Zamm with Robert Gannon. New York: Simon and Schuster.

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