

# Hazardous Household Substances: Alternatives That Are Relatively Free of Toxic Effects

Cooperative Extension Service  
College of Agriculture and  
Home Economics



## Guide G-315

Reviewed by Constance Kratzer, Family Resources Management Specialist

This publication is scheduled to be updated and reissued 6/08.

### INTRODUCTION

Many people believe that hazardous or toxic chemicals are found only in industries that manufacture plastics, pesticides, pharmaceuticals, or automobiles. However, a wide range of products that we use in our homes contain chemicals that fit the definition of hazardous or toxic. Hazardous products line our kitchen, bath, utility and garage shelves. In most cases the concentration of the chemical products found in the home are much lower than the concentration of those in the work-place. However, the potential for exposure to chemicals from household products in the home does exist.

### WHAT CAN WE DO?

Misuse or improper disposal of these hazardous products can pose a threat to your health. Long term or cumulative problems, such as contamination of drain fields, septic systems, and surface and groundwater can also occur.

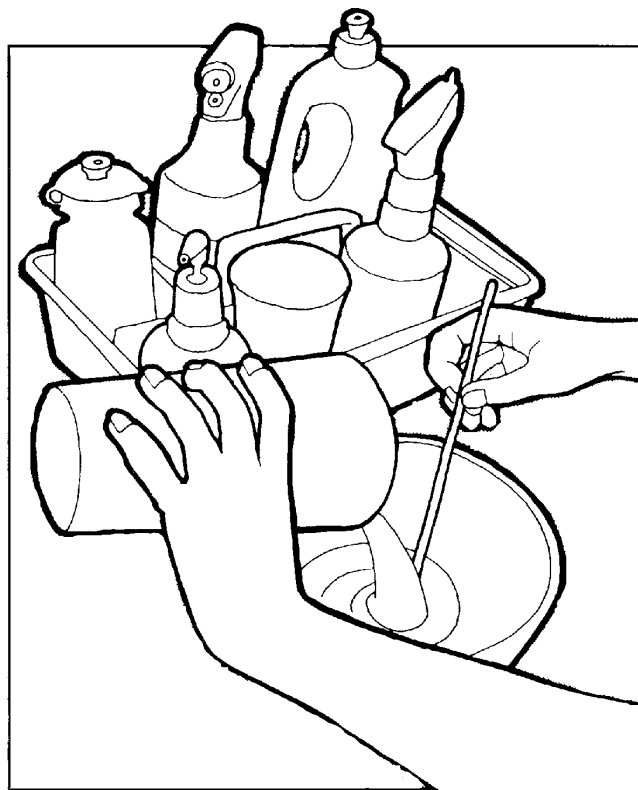
To decrease exposure to pollutants, and produce less hazardous household waste, consideration should be given to using alternatives that contain chemicals that are relatively free of toxic effects.

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.

Why do we use potentially hazardous products? Time and convenience are the primary reasons. In days past, sinks were scrubbed with baking soda. Extra effort was needed to maintain a stain free sink. Wood floors were cleaned with oil and vinegar or just mineral oil. This eliminated the need for wax, but required more work. Today, most households contain substances relatively free of toxic effects that can be combined to do the job currently being done by a hazardous product.

### IS IT HAZARDOUS?

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



**Alternatives to hazardous household products can be prepared by you.**

## HOUSEHOLD CLEANERS

Many common household cleaning products contain caustics or solvents, which when used, stored, or disposed of improperly, could threaten your family's health or damage the environment. Caustic chemicals such as those found in oven cleaners (lye, sodium hydroxide), drain cleaners, scouring powders, or bleach can burn and severely damage the skin and eyes.

Solvents are fast-drying substances that dissolve another substance. Inhalation of these vapors or accidental ingestion can be harmful or 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 contain solvents.



**To avoid leftovers, share household products with a friend.**

## WASTE DISPOSAL

Be aware of the hazards indicated on the label before using the product. Carefully follow directions concerning use, storage, and disposal. In most cases there will be no specific directions for disposal of the "left over" product. The best disposal route for hazardous products is to use them up 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.

## YOUR ALTERNATIVES

You can reduce handling, use, and disposal hazards associated with dangerous household products by substituting safer alternatives. Some of these alternatives are as simple as 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 perhaps eliminate the stain. In some cases, using these alternatives may require more effort in order to get the desired results.

Reducing the amount of hazardous products you purchase not only saves money, but also eliminates the threat of accidental exposure and pollution of the environment. You may decide to use latex water base paint, scrub your sink with baking soda, or spray your plants with a mixture of pepper water and garlic. Once you understand the basic substitutes, formulas, and procedures, you can make your own decisions about tradeoffs. Fortunately, most households have the basic ingredients for safer substitutes for most of these hazardous household materials.

To help you get started, alternatives to hazardous household products have been provided. These alternatives are relatively free of toxic effects.

## RELATIVELY TOXIC-FREE HOUSEHOLD ALTERNATIVES

---

- Open the windows, use an exhaust fan, or both.
- Use the air conditioner to dry the air and keep odors down.
- Sprinkle baking soda in odor-producing areas.
- Place an open box of baking soda in the refrigerator to absorb food odors.

### AIR FRESHENERS

---

- Scour badly abraded aluminum vessels with whiting (calcium carbonate, found in paint stores) and soap jelly (recipe given in General Purpose Cleaners section). Use very fine steel wool.
- Brighten a discolored aluminum pan by boiling it in one of the following solutions until the discoloration disappears:
  - 1 tablespoon of vinegar to 1 quart water
  - 2 teaspoonfuls of cream of tartar to 1 quart water.

### ALUMINUM CLEANERS

---

- Mildew and other stains can be removed from grout with a solution of 1/2 cup of bleach and 1 cup water. Let stand 5 minutes and rinse with clear water.
- Scrub with washing soda (sodium carbonate)
- Scrub with borax (sodium borate)

### BATHROOM CLEANERS/ DISINFECTANTS

---

- Make a paste of:
  - 1 pint soap jelly (see General Purpose Cleaners)
  - 1 cup whiting
  - 1 teaspoon household ammoniaAdd whiting and ammonia to soap jelly before it congeals, and beat together. After using the paste, wash articles in hot suds, rinse, and dry.
- Tarnished copper also can be cleaned with salt dissolved in hot white cider vinegar or lemon juice.
- Brass with antique finish can be polished with boiled linseed oil or lemon oil.

### BRASS AND COPPER CLEANERS

---

- Clean the carpet on a sunny day. Open the windows to speed up drying. Don't soak the carpet—it may mildew.
- Test the shampoo first on an inconspicuous area to check for possible discoloration.
- Use a mix of baking soda with water.
- Prepare a liquid detergent and boiling water solution (see Upholstery Cleaners section). Rub the foam in 4 foot sections. Continue the same process as for upholstery.

### CARPET AND RUG CLEANER

---

- Prepare a mixture of 2 tablespoons of trisodium phosphate (TSP) and 1 gallon of water. Apply to tile and grout with a brush or cloth. Mop up dirty water with sponge or cloth. Needs no rinsing unless higher concentration of TSP is used for heavy cleaning.

### CERAMIC TILE CLEANER

---

To keep drains clean:

- Cover drains with screens.
- Flush pipes with 1/2 pound of washing soda in 2 cups boiling water, then rinse. Do this once a month.

To unclog drains:

- Mix 1 cup each of baking soda, salt and white vinegar. Wait 15 minutes. Pour in drain and flush thoroughly with boiling water. Use a rubber plumber's snake if drain is seriously clogged.
- 

### DRAIN CLEANERS

**FLOOR POLISH  
(LIQUID)**

- 1/4 cup paraffin and 2 quarts mineral oil. Melt paraffin in a double boiler. Stir in mineral oil. Transfer to bottles and label.

**FURNITURE  
POLISH**

- Dust with cloths that gather dust rather than scatter it. Make dust cloths by putting cloths in a tin container or jar in which a few drops of oil or wax have been placed. Cover tightly and leave overnight. The cloths will absorb just enough oil or wax to remove dust and polish the surface at the same time.
- Use lemon oil and beeswax.
- Use beeswax and olive oil.
- Mix 2 teaspoons lemon oil and 1 pint mineral oil in a spray bottle.
- Mix 1 tablespoon mild soap powder, 1 quart water, 1 tablespoon household ammonia, and 2 tablespoons boiled linseed oil or a good furniture polish.
- Mix equal portions of denatured alcohol, strained fresh lemon juice (not canned or frozen), olive oil or boiled linseed oil, and gum turpentine. Shake mixture each time before using. This polish keeps indefinitely.

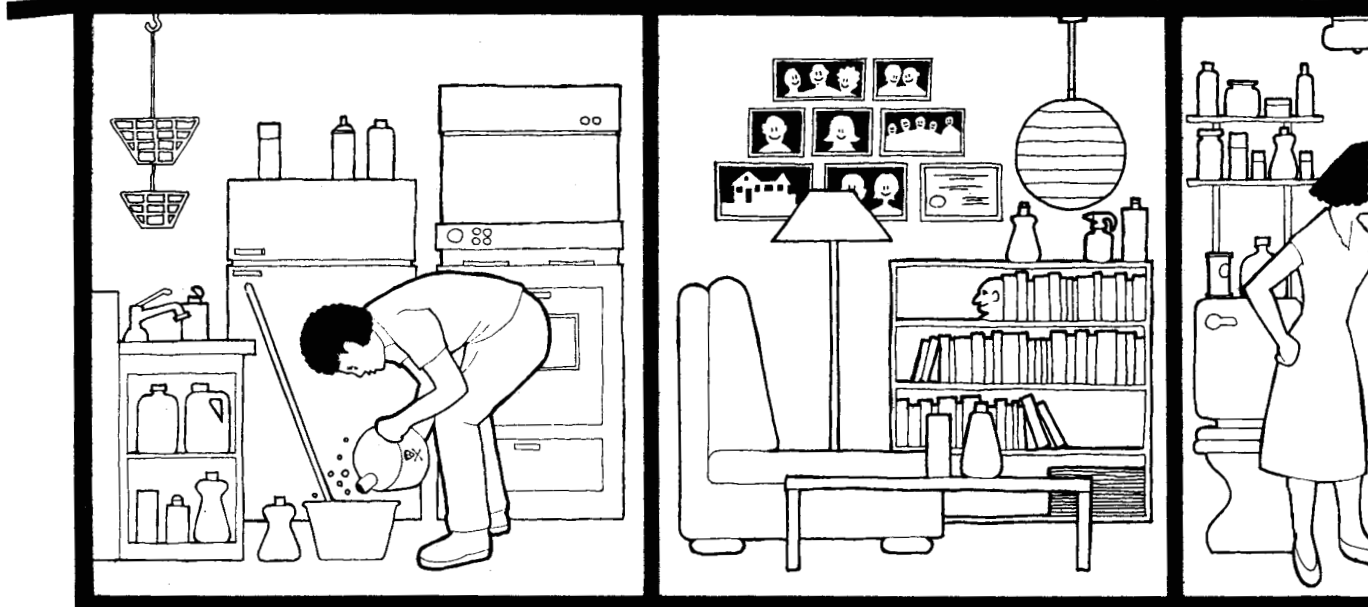
**GENERAL PURPOSE  
CLEANERS**

- Vinegar with salt and water.
- Vinegar mixed with water.
- Baking soda on a damp sponge (rinse with water and polish to shine).
- Most soap pads (example, SOS pads).
- Baking soda—rub with 1/2 lemon dipped in borax.
- 2 tablespoons of ammonia, 2 tablespoons liquid detergent, 1 quart warm water
- Soap jelly (used in other formulas). To make, dissolve 1 cup of shaved soap or soap flakes in 1 quart boiling water. When entirely melted or dissolved, pour into a wide mouth jar. Let stand in a cool place until it jells.

**GENERAL PURPOSE  
METAL POLISH**

- 1/2 cup household ammonia, 1/2 cup denatured alcohol, and 1 cup diatomaceous earth. Mix ammonia and alcohol. Stir in the diatomaceous earth. Add water to make a creamy mixture. Store in bottle which has been labeled, and shake before using.

*Hazardous household products can be*



- Boil the item in soda water (sodium bicarbonate solution) for a few minutes to clean. Remove rust from iron with steel wool or scouring powder.
- Before storing untreated iron or steel pots and pans, coat with saltless fat or oil, wrap in paper, and store in a dryplace.

## IRON CLEANER

- Wipe away grease and spills after using the oven. Wipe away charred spills with a non-metallic bristle brush. If the oven is wiped out after each use, there will not be a need to use harsh chemicals for cleaning.
- To remove baked-on grease and spills, scrub with a baking soda, salt, and water paste. Or sprinkle with dry baking soda, then scrub with a damp cloth after 5 minutes. (Do not let baking soda touch wires or heating elements.) Scour racks and burner inserts with steel wool.

## OVEN CLEANERS

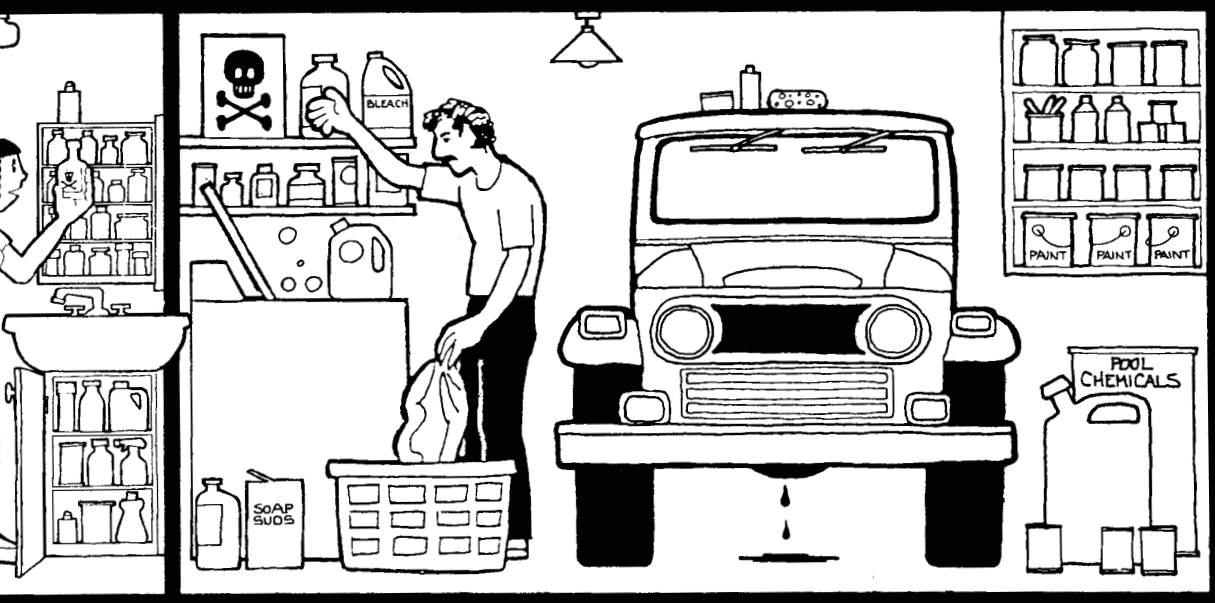
- To prevent streaking, wash walls by starting at the baseboard and working upward. If soiled water runs down on the clean surface, clean it up immediately. Gloss enamel-painted walls are easier to clean than flat-painted walls because they can withstand stronger washing solutions.
- For general cleaning, use a mixture of soap jelly (see General Purpose Cleaners) or liquid detergent and warm water. Add enough water to make light suds. Dust all painted surfaces thoroughly before washing, then wash with a soft cloth dipped in the cleaning solution and wrung out. Rinse well and then dry with a soft cloth. Wash only a small area at a time.
- Whiting paste will remove fingerprints and clean heavily soiled places. Make it by mixing four parts of whiting with one part soap jelly. Keep it in a small jar. Apply with a soft cloth, rubbing lightly, then rinse.

## PAINTED SURFACES

- Pour water into an aluminum or enameled pan with aluminum foil covering the bottom of the pan. Fill to a depth of 2 to 3 inches (enough to cover silver with water). Add 1 teaspoon baking soda, 1 teaspoon salt, and heat until water boils. Add tarnished silver and boil 3 minutes. Remove silver, wash in soapy water and polish dry. (Not for use on silver jewelry or flatware with hollow handles.)

## SILVER

found throughout a household.



### TOILET BOWL CLEANER

- Clean with borax and lemon juice.
  - Pour 1/2 cup liquid chlorine bleach into toilet bowl. Let stand for at least 30 minutes, then scrub with a long-handled brush and flush. Remember, **never** mix ammonia and bleach.
  - Salt and water.
- 

### UPHOLSTERY CLEANER

- Mix 1/2 cup mild liquid dishwashing detergent with pint boiling water. Let cool. Whip into a thick foam using an electric mixer. Test a small area before proceeding. Apply the foam to the fabric with a damp sponge. Wipe off the suds with a clean cloth. To rinse, add 1 cup of white vinegar to 1 gallon of lukewarm water. Rinse well, using as little liquid as possible, and change the water often. Put pressure on a clean white towel to remove the moisture (do not rub).
- 

### WINDOW AND MIRROR CLEANER

- Remove surface soil with a paper towel or soft cloth. Apply cleaning liquid with a sponge. Rub dry and polish with a newspaper or cloth.
  - On windows, rub the inside in one direction and the outside in another to determine which side the streaks are on. Avoid spilling the cleaner on painted or varnished woodwork because it can damage the finish.
  - Add 2 tablespoons of vinegar to 1 quart water. Apply with a wadded-up newspaper.
  - Mix 3 tablespoons of ammonia, 1 tablespoon white vinegar, and 3/4 cup water in a clean spray bottle.
  - Mix 1/4 cup cornstarch, 1/2 cup ammonia, and 1 cup vinegar in a jar. Wear gloves, if necessary, because vinegar is a mild acid. It will remove rust or lime deposits on the outside of windows.
- 



Making your own household cleaning products can help the environment and save you money.

## GENERAL RULES FOR MANAGING TOXIC HOUSEHOLD PRODUCTS

- Select the least toxic products for your home.
- Buy only as much as you will use.
- Read the label. It will list ingredients; instructions for use, storage, and disposal; and hazards associated with use.
- Avoid aerosol spray cans whenever possible. Buy liquid, paste, or powder forms of products.
- Dispose of toxic waste as recommended. Call your county Department of Environmental Services for specific information about Amnesty Days and other disposal options.

## PREVENTIVE MEASURES

- An aggressive home maintenance plan will reduce the amount of cleaning products and hazardous household products needed in the home. For example, roaches and other insects are discouraged by good housekeeping practices.
- Store food in sealed containers.
- Wipe up spills.
- Bathe pets frequently to eliminate fleas.
- Put a piece of screen over drains to catch food particles or hair.
- Avoid baked-on stains in the oven by wiping up after each use, and/or use liners to catch spills.
- Air out the house occasionally to avoid the use of chemical air fresheners.

## SAFETY CONSIDERATIONS

- Never mix chlorine bleach with any other cleaning agent, such as ammonia or vinegar. It may create toxic fumes.
- Store all cleaning solutions out of reach of children.
- To avoid accidental poisoning, never transfer a product to a container that once held food or drink.
- Be sure that each container has a label.
- Mix cleaning solutions in a well-ventilated area.
- Clean up after using toxic substances.
- Never smoke or eat when handling hazardous materials.
- Keep the container closed. Harmful fumes may escape from an open container.

## WHERE TO PURCHASE PRODUCTS MENTIONED IN THIS PUBLICATION

Ammonia	Retail Supermarket/Pharmacy
Baking Soda (sodium bicarbonate)	Retail Supermarket/Pharmacy
Boiled linseed oil	Hardware Store
Borax	Retail Supermarket/Pharmacy
Cream of tartar	Retail Supermarket/Pharmacy
Denatured alcohol	Hardware Store/Pharmacy
Diatomaceous earth	Pool Chemical Supply Co.
Fuller's earth	Ceramic Shop/Pharmacy
Gum turpentine	Hardware Store/Pharmacy
Salt (sodium chloride)	Retail Supermarket/Pharmacy
Trisodium phosphate	Hardware Store/Pharmacy
Vinegar	Retail Supermarket
Washing soda (sodium carbonate)	Retail Supermarket
Whiting	Paint Store

## INFORMATION SOURCES

*Chemical Information Center*, toll free, 1-800-262-8200, 8:00 AM–9:00 PM. 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, DC. 20037 (202-887-1318). A brochure providing information on services provided free.

Gosselin, Robert, et al. *Clinical Toxicology of Commercial Products*. Baltimore: Williams & Wilkins, Baltimore, MD, 1984.

*Disposal: Do It Right—Managing Household Wastes*. The Household Products Disposal Council, 1625 Eye Street, NW, Suite 500 Washington, DC 20006. This is an information service established through a trade association, 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 Dept. 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 Health 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*. Water Pollution Control Federation, 601 Wyeth Street, Alexandria, VA 22314-1994 (703-684-2438). A colorful, easy-to-read chart that establishes the most effective means of disposing of household waste. \$.05 per copy.

*House Dangerous*. Ellen J. Greenfield, Foreword by Ralph Nader, Vintage books, a division of Random House, New York, NY.

*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. Non-toxic Lifestyles, Inc., Box 210-019, San Francisco, CA 94121.

*Why Your Home May Endanger Your Health*. Alfred Zamin with Robert Gannon (New York: Simon and Schuster, 1980).

For more information contact the Department of Environmental Regulation, County health Department, or the county Cooperative Extension office. Your extension office can provide a variety of printed materials on managing hazardous household substances.

The University of Florida Cooperative Extension Services assumes no responsibility and disclaims any liability for any injury or damage resulting from the use or effect of any product or information appearing in this document. No endorsements are intended or implied.

Originally written by Marie S. Hammer, Home Economics Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville. This publication is reprinted with permission from University of Florida. First printing, June 1988.

New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.

Reprinted June 2003

Las Cruces, NM  
7C