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Solid Waste MANAGEMENT

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Alternatives to hazardous and hard-to-dispose-of household products

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Too often today, we look for the quickest and easiest solutions to our daily chores. We have come to depend upon products and chemicals that are hazardous to the environment and difficult to dispose of—solvents, pesticides, and many cleaning products. Other problem-creating products include hobby materials (chemistry sets, photo chemicals), used motor oil, gasoline, and fireworks. A careful inventory in your home may reveal a deadly array of such substances.

What is a "hazardous" household product?

A "hazardous substance" is defined in federal government regulations as one which may cause personal injury or illness during any customary or reasonably foreseeable handling or use. There are two categories of hazardous household products and two specific sets of federal regulations for their labels:

1. Products containing pesticides which are toxic, regulated by the Federal Insecticide, Fungicide, and Rodenticide Act; and
2. Products containing hazardous substances (other than pesticides), which can be toxic, corrosive, irritant, flammable or radioactive, regulated by the Federal Hazardous Substances Act.

Because of America's growing landfill crisis, toxicity is the major concern of household hazardous products. But hazardous household products can also pose a threat to your immediate health since misuse can lead to accidental poisoning. Long term or cumulative problems in landfills and contamination of drain fields and septic systems as well as surface and ground-water can also occur.

How do you know if you're using a hazardous product?

Read the label. Many household products used for cleaning, car care or yard care can be toxic, corrosive,

flammable or reactive. All of those designations are considered hazardous. The signal word "DANGER" will appear on substances which are extremely flammable, corrosive or highly toxic. Substances which are highly toxic must include the additional word "POISON." The signal word "WARNING" or "CAUTION" is used on all other hazardous substances.

Where are hazardous wastes in my home?

The hazardous wastes in your home may eventually end up in landfills and in Montana's water supply.

Home checklist

Where to look

- ✓ Basement
- ✓ Garage
- ✓ Bathroom
- ✓ Storage shed
- ✓ Utility room
- ✓ Kitchen
- ✓ Laundry room

Cleaning products

- ✓ Drain, toilet and window cleaners
- ✓ Cleaning solvents and spot removers
- ✓ Septic tank cleaners
- ✓ Disinfectants
- ✓ Bleach and ammonia
- ✓ Oven cleaners

Hobby and health care products

- ✓ Glues and cements
- ✓ Artist's paint and inks
- ✓ Waterproofers
- ✓ Photographic chemicals
- ✓ Medicines
- ✓ Some hair care products and cosmetics

Paint and building products

- ✓ Paint thinners, strippers and solvents
- ✓ Spray cans
- ✓ Lacquers, stains, varnishes
- ✓ Wood preservatives
- ✓ Asphalt and roof tar
- ✓ Acids for etching
- ✓ Latex and oil-based paints

Automotive products

- ✓ Antifreeze ✓ Rust inhibitor, remover
- ✓ Solvents ✓ Used motor oil
- ✓ Gasoline ✓ Brake and transmission fluid
- ✓ Battery acid ✓ Polishes and auto paints

Gardening and pest control products

- ✓ Sprays and dusts ✓ Ant and rodent killers
- ✓ Flea powder ✓ Weed killers
- ✓ Banned pesticides ✓ Fertilizers

What can you do?

- Buy products only in the quantity you need.
- Use products as directed
- Use products up completely before buying more
- Try to give leftovers to neighbors, businesses or organizations who will use them properly for their intended purposes.
- Recycle used motor oil and auto batteries.
- Dispose of chemical solids in original containers whenever possible.
- Keep chemical wastes away from children and pets.
- Use non-hazardous alternatives whenever possible.
- Replace chemical cleaners with "elbow grease."

Think before you throw it away

- Do not dispose of liquid chemicals, banned pesticides, batteries or motor oil in the trash. Contact the Montana Department of Agriculture for information on disposing of banned products.
- Do not bury containers or leftover chemical products in your yard or garden.
- Do not burn containers of leftover chemicals.
- Never reuse pesticide or chemical containers for other purposes. Residues remain that contaminate other materials subsequently placed in the container.
- Avoid using aerosol cans.
- Do not pour used oil or liquid chemicals on the ground.
- Do not use storm sewers for chemical waste disposal.
- Do not mix chemical wastes together.

Alternatives to hazardous household products

What did we do before we had today's convenient detergents, polishes and other household products? Most homemakers made their own potions to clean the home, using common "general store" items.

Today, too, we can create our own products. However, it is important to remember that years ago home remedies were created because few commercial choices existed. The do-it-yourself products we conjure up for ourselves are not necessarily better or safer than those created by professional chemists in industry. Before making your own substitutes, check your local stores for environmentally safe products. Most manufacturers are also concerned about the effect their products have on the environment.

What are the tradeoffs?

Time and some convenience are the primary tradeoffs. In days past, the sink was 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 still contain safe products to do the job currently being done by a hazardous product.

Personal hygiene product	Chart # 1 Alternatives
Shampoo	Beat one egg yolk while gradually adding one cup water. Massage into hair and rinse.
Hair rinse	Lemon or vinegar rinse removes detergents and restores a proper pH balance.
Hair conditioner	Massage 2 teaspoons to 2 tablespoons natural yogurt throughout hair.
Bath salts	Use oils for dry skin, herbs for fragrance and relaxation, salt for cleansing and toning, starch to give skin sleekness, or milk (especially powdered) to soften skin.
Facial cleanser	Oatmeal cleans and softens without soap. Wrap in a cloth and use as washcloth.
Skin buffer	Pour olive oil in a cupped hand and add a few dashes of salt. Rub over skin, smoothing rough areas, and wait five minutes. Rinse off using oatmeal or soap.
Hand lotion	Combine ripe tomato, lemon juice and glycerin in equal parts. Massage into skin; rinse with tepid water.
Toothpaste	Add enough water to baking soda to form a paste.
Mouthwash	A salt and water solution will eliminate germs and odors in mouth.
<i>Note: Some researchers caution against using foods in personal hygiene products because they provide a breeding ground for bacteria.</i>	

Chart # 2

Household cleaner	Alternatives
Drain cleaner	Pour boiling water down drain. Two handfuls of salt followed by boiling water should clear pipes and help to avoid clogging.
Cleanser	For sinks, salt is an excellent scouring agent—and it also disinfects. For ovens and refrigerators, baking soda is a good cleanser and freshener.
Window, glass, plastic cleaners	Two tablespoons of vinegar in one quart of water works well. The concentration of vinegar to water can vary depending upon required cleaning.
Chrome, stainless steel polish	Dip damp cloth in flour and rub on surface of object.
Copper cleansing paste	Mix equal parts of salt and flour together. Heat an equal amount of vinegar, then combine ingredients to form a paste.
Hand laundry soap	Collect remnants of natural soap bars in a wide-necked jar to make an excellent soap-jelly. When the jar is just over half-full, pour boiling water to the brim. Let it sit mixing and blending (you can give it a stir to help the process along).
Marble cleanser and polish	Cut a fresh lemon in half. Fold within a cloth, dip edge into warm water and then borax. Rub marble surface, then buff with soft, dry cloth.
Silver polish	Soak silver in 1 quart warm water containing 1 teaspoon baking soda, 1 teaspoon salt and a piece of aluminum foil.
Brass-cleanser and polish	Mix equal parts of salt and flour. Add enough vinegar to make a stiff paste. Cover surface and allow to dry, then quickly rinse off.
General furniture polish (don't use on waxed furniture)	1/2 cup vinegar, 1/2 cup rubbing alcohol, 1 cup linseed oil. Shake well before each application. Use a thin coating and test in a small area before total application. Also try 1 teaspoon lemon oil in one pint mineral oil.
Leather cleanser for accessories or furniture	Carefully bring 1 cup linseed oil to a boil. Remove from heat and allow to cool. Add 1 cup vinegar and mix well.
Mildew Remover	Chlorine bleach. (This could be more dangerous than some commercial products. Use with ventilation and do not mix with ammonia or acid products.)
Deodorizers	Alternative suggestions
Smoke odor deodorizer	Place a bowl filled with white vinegar next to stove to lessens cooking odors and smoke. Also helps eliminate cigarette odors when placed throughout a room.
Paint fumes deodorizer	Chop up one large onion and place in bucket of water in middle of room.
Refrigerator deodorizer	Keep open box of baking soda inside refrigerator.
Bathroom deodorizer	For quick elimination of noxious odors, light a match to burn off gases. CAUTION: Keep matches out of children's reach. Scented candles work well, also.

The following lists offer suggestions for alternatives to hazardous and hard-to-dispose-of household products which can be made up of easily obtainable substances. Although not infallible, these methods have been found to be effective and economical. You may even find that they produce a more desired effect than the methods you currently use.

Caution: Although these compounds may be kinder to the environment than some over-the-counter preparations, some may contain highly toxic ingredients. Keep out of reach of children. Some products, like chlorine bleach and ammonia, can react with each other to cause deadly fumes. Do not mix substances unless you know that they are absolutely safe together.

Personal hygiene (see Chart #1)

Our hair and skin often suffer from the many detergents we use on them. Some of us counteract these results with conditioners and moisturizers. Many items found within the home can produce a satisfying, healthy daily cleaning routine. However, many of the alternatives suggested in Chart #1 use food products which may be a breeding ground for bacteria.

Household cleaners (see Chart #2)

Many common household cleaning products contain dangerous ingredients. Disposed of improperly, they could threaten your family's health or damage the environment. Caustic chemicals such as those found in oven cleaners (lye, sodium hydroxide), drain cleaners

or scouring powder can cause burns and severe damage to the skin and eyes. Furniture polish, silver cleaners, paint remover and wood floor wax contain solvents—fast-drying substances that dissolve another substance. Inhalation of vapors or accidental swallowing of the substance 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.

Aerosols	Chart # 3 Alternatives
Deodorants	Roll-ons, creams, sticks, pump type sprays.
Hair spray	Setting lotions, gels, pump type sprays.
Shaving cream	Brush and shaving soap.
Air fresheners	Ventilate room; place box of baking soda in enclosed areas; set out vinegar in open dish; use fresh flowers and herbs; add cloves and cinnamon to boiling water, let simmer.
Disinfectants	1/4 cup bleach to one quart warm water; air out bedding; keep bathrooms dry.

Hazardous product	Chart # 4 Alternatives/ Disposal recommendations
Motor Oil	None/Recycle at service station or local oil recycling center.
Transmission, brake fluid	None/Recycle same as above.
Antifreeze	None/Recycle as above. Or if on a city water system and permitted to do so, wash down drain with lots of water. DO NOT dispose of antifreeze in septic tank.
Car batteries	None/Trade in or take to special recycling center.
Paint	None/Use water-based latex paint if possible. Avoid aerosol sprays. For proper disposal, let evaporate, then wrap residue and place in garbage. Old, lead-based paints should not be used—take to a hazardous waste collection program if possible.
Lacquer, varnish stripper, thinner, turpentine	Use according to directions, strain and reuse thinners and turpentine; always keep covered to avoid evaporation and take leftovers to hazardous waste collection site.

Aerosol sprays (see Chart #3)

Aerosols are made up of one-half active ingredient and one-half liquid or gaseous propellant under pressure. Some contain organic solvents to dissolve or suspend substances—petroleum distillates, toluene, chlorinated hydrocarbons and ketones. Mist particles from the aerosol enter the lungs and then the bloodstream. Aerosol cans are also potentially explosive and dangerous not only to you, but also to sanitation workers.

Automotive and paint products (see Chart #4)

Most automotive and paint products are dangerous because they contain poisonous chemical compounds, such as lead, acid or solvents. They also can be flammable. There are few alternative products, so proper use and disposal becomes a high priority for safety.

Pesticides, herbicides, rodenticides (see Charts #5, 6 and 7)

Pesticides contain a range of poisons which may cause serious damage to people, pets and wildlife if improperly used.

Hazardous product	Chart # 5 Alternatives to try
House plant pesticides	Apply soapy water to leaves, rinse.
Garden pesticides	Use biological controls, such as lady beetles for aphid control.
Herbicides	Hand-pull weeds or mulch generously; cover garden with plastic in fall to prevent weed seed germination; cultivate with a hoe.
Rodent bait	Get a cat. Use a trap.
Insect repellent	Put up screens. Wear protective clothing. Some commercial bath oils repel insects.
Fertilizers	Use peat moss or compost. Use organic fertilizers containing blood or fish meal (high in nitrogen) or bone meal (high in phosphorous).
For specific insect pests	
Moths (balls)	Use cedar chips or dried lavender.
Moths (Pomander)	Stick cloves into surface of apple or orange until completely covered. Cover with white tissue and let dry for two weeks in dry, airy place. Then unwrap and hang in closet. Cedar wood chips (or chests) also repel moths.
Roaches	Package food in roach-free containers. Sanitation is imperative.
Ants	Caulk and seal holes where ants enter.

For home use, common sense and a little extra care around the house and garden can reduce or eliminate pests and weeds without chemicals. For example, keep a clean garden by removing dead leaves, debris, wood and weeds; remove and destroy infected plants; use barriers and traps once you can identify specific pests; and encourage beneficial organisms like ladybugs, praying mantis, etc. (See charts on page 4 and below.)

In the garden

The best way to keep a lawn weed-free is to keep it healthy. This requires proper watering and fertilization. There are many types of grasses and some adapt better in certain areas.

Earth-saver plants

The air within houses and office buildings can be up to five times more polluted than the outdoor air. According to a study by the National Aeronautics and

Chart # 6	
Insect problem	Alternatives to try
Cockroaches and ants	Fill cracks around shelves, cupboards, sinks and bathtubs with caulking, putty or paint. Eliminate dripping water and piles of old newspapers. You can sprinkle equal parts of confectioners sugar and borax in dry area where ants or cockroaches are found, but only in areas inaccessible to children or animals . Boric acid is toxic. Do not apply in areas where food is stored or eaten. Sticky traps are also available.
Mealy bugs or scales on houseplants	Apply alcohol or oil directly to the colonies with a small paintbrush.
Other houseplant pests	Wash leaves with soapy water (use non-detergent soap), then rinse.

Chart # 7	
Problem to be controlled	Suggested methods
Aphids	Protect ladybeetles and lacewings—they prey on many such garden pests.
Cabbage worms	Hand pick worms.
Slugs and snails	Pour beer in a flat receptacle and place below ground level in the infested area. Dispose of properly when slugs or snails have attached themselves to the bottom.
Squashbugs, snails, and wireworms	They will attach themselves to the bottoms of boards placed around perimeter of garden. Wireworm and snails also are attracted to potatoes and will attach to the insides of hollowed out potato halves (scoop out the inside to form an igloo).
Crabgrass	A teaspoon or less of salt placed in the center of the individual plant will kill it.
Other ways of coping:	
Physical deterrents	Tar paper stapled to form a cylinder placed around the base of an affected plant will deter many pests. Wood ashes can deter borers that attach to trees—add enough water to form a paste and apply to the bottom of the tree.
Weeding	The most practical and beneficial way to eliminate weeds is to hand-pull them. The best time of year to weed is spring. For large patches or tedious weeding, anchor sections of black plastic around weeded area for 7-10 days. After removing dead weeds, sprinkle with grass seeds. Hand-harvesting also is the best method for removing weeds from ponds or lakes and can even be done professionally.

Chart # 8		
Pollutant	Sources	Solutions
Formaldehyde	Foam insulation, plywood, paper goods, household cleaners, carpeting, furniture	Philodendron, golden pathos, spider plant, bamboo plant, corn plant, chrysanthemum
Benzene	Tobacco smoke, gasoline, synthetic fibers, plastics, inks, oils, detergents, rubber	English ivy, marginata, Janet Craig chrysanthemum, gerbera daisy, peace lily, warneckei
Trichlorohylene	Inks, paints, varnishes, dry cleaning solvents	Gerbera daisy, chrysanthemum, peace lily, marginata, warneckei

Space Administration, one potted plant per 100 square feet of floor space can help purify and absorb chemicals from the indoor air, reducing "sick building syndrome" See Chart #8 for some good anti-pollutant green-leaf choices.

Folk Remedies

There are a number of popular folk remedies recommended in some circles as alternatives to hazardous pesticides. We know of little or no scientific research that confirms effectiveness. If you try any of these, please let the author know if they work or not. (Write to Mike Vogel, MSU Extension Service, Bozeman, MT, 59717 or phone 406-994-3451.)

Garden pesticides: Try 1/4 cup cayenne pepper in 1 pint water and spray on garden plants.

Rodent repellent: Sprinkle chopped bay leaves and cucumber skins around cracks and crevices.

Insect repellent: Drink brewer's yeast (if you are not allergic to it). Plant tansy around occupied areas or use lavender oil on your skin.

Cockroach repellent: Try a mixture of chopped bay leaves and cucumber skins.

Flies: Mint plants set on window sills help to repel flies.

Aphids: Garlic, chives, petunias, and nasturtiums repel aphids.

Cabbage worms: Tansy, rosemary and tomato help repel cabbage worms

Organic pesticide: Chop 3 ounces garlic bulbs and soak them in 2 teaspoons mineral oil for 24 hours. Slowly add one pint of water in which 2 ounces of oil-based natural soap has been dissolved and stir well. Squeeze this liquid through gauze and store in a tightly-sealed jar. Dilute 1 part garlic mixture to 20 parts water in sprayer.

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