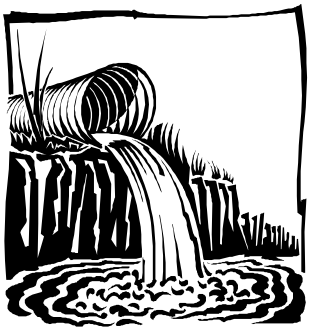
THE HAWAI'I GUIDE TO ALTERNATIVES & DISPOSAL OF HOUSEHOLD HAZARDOUS WASTES



State of Hawai'i
Department of Health
Environmental Health Administration

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For additional copies:

Hawai'i Department of Health
Office of Solid Waste Management
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814
(808) 586-4240

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Pollution Prevention Workgroup Members:

Department of Health, Environmental Health Administration:
- Office of Solid Waste Management: John Harder, Caroline McCabe
- Solid & Hazardous Waste Branch, Waste Minimization Program: Jane Dewell
- Environmental Planning Office, Pollution Prevention Program: Sara Russell
- Environmental Planning Office, Non Point Source Pollution Program: Ruth Donovan
- Clean Air Branch: Robert Tam

City and County of Honolulu, Refuse Division: John Lee
Maui County, Refuse Department: Dave Wissmar
Hawai'i Materials Exchange (HIMEX): Jeff Stark
Unitek Environmental Services, Inc.: Allison Beale, Brian Piccolo
University of Hawai'i Sea Grant Extension Service: Chris Woolaway
Recycle Hawai'i: Taira Yoshimura, Mary Vesenka

Additional Reviewers:

Department of Agriculture, Pesticides Branch: Bob Boesch
Department of Health, Office of Hazardous Evaluation & Emergency Response: Barbara Brooks, Leslie Au
Department of Health, Environmental Planning Office: June Harrigan-Lum
County of Maui, Wastewater Reclamation Department: Steve Parabicoli
EarthWare, Honolulu, Hawai'i: Arlene Woo, owner

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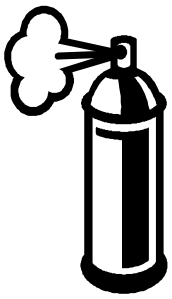
GENERAL INFORMATION

What Are Hazardous Products & Why Should I Care?

We like to think of our homes as safe and secure. But, there are dangers lurking in the garage and under the sink. Take a look. You will probably see old cans of cleaners, paint, bug spray, and used motor oil. How long has it been since you used them? How will you get rid of them?

Hazardous products that need to be disposed of become hazardous wastes. These wastes can pose a risk to our health and the environment. Unlike businesses, which are regulated by the state Department of Health (DOH), householders are exempt from regulations that require proper storage and disposal of hazardous wastes. But this exemption does not mean that householders do not need to behave responsibly! Hazardous wastes are characterized by at least one of the following attributes:



1. The waste is reactive, meaning it has the potential to cause explosions.
2. The waste is corrosive, meaning it has the potential to dissolve materials.
3. The waste is ignitable, meaning it has the potential to catch fire.
4. The waste is toxic, meaning it has the potential to poison living things.

Every year in Hawai'i, several thousand tons of household hazardous wastes are discarded in the garbage. This waste ends up in landfills or incinerators. Unknown quantities are dumped on lawns or into sewers, storm drains, streams, and the ocean. When disposed of improperly, hazardous wastes can come back to harm you, your children, your pets, and your environment.

As residents of Hawai'i, we bear the responsibility to dispose of household hazardous waste properly in order to protect and preserve the quality of our 'aina. In the following pages, you will find instructions on how to safely dispose of many household hazwastes. You will learn how to reduce your use of hazardous products by making use of alternatives. Follow these steps and you will be making your home, your neighborhood, and all of Hawai'i a cleaner and more beautiful place to live.

Safety Precautions

Always read the label of any household product. If the label says “Danger,” “Warning,” “Caution,” “Flammable,” or “Poison,” the product is hazardous and must be used strictly according to label instructions. Overuse or other improper use of hazardous products greatly increases the risks to human health and the environment.

Storage: Store all hazardous household products in a secure area away from children, pets, and potential sources of heat, sparks, or flames. Store flammable products in tight containers in well-ventilated areas. Store products in their original containers whenever possible. Should it become necessary to store a product in a different container, clearly label the container with the product name and instructions. However, avoid using food containers as it increases the likelihood of the product being used in a harmful way.

Use: Follow label precautions when using hazardous products. Use products in well-ventilated areas - work outside or, if you must work indoors, make sure your windows are open and use a fan to create a cross breeze and draw vapors away from you. Do not wear contact lenses while working with hazardous products - lenses can absorb chemical vapors. To protect yourself when using hazardous products, consider wearing goggles, gloves (rubber or latex), a plastic apron, or a respirator. **Further information on appropriate equipment can be obtained from the Department of Occupational Safety and Health (**see **page 6)**.

Reducing Use of Hazardous Household Products

There are two ways to reduce your use of hazardous products: l) choose safer, less-hazardous products; and 2) use less of a product. Not every job can be done with safer products, but most can. By learning some simple techniques, you can eliminate most house and garden pesticides. Some safer products have been around a hundred years or more. Borax, baking soda, vinegar, and soap are things your grandmother used for cleaning. Other products are the result of sophisticated research to find less hazardous replacements for toxic products. Often, alternative products can simply be substituted for those you have been using. Some alternatives may require more effort, but they do work, and they may cost less.

Reducing use of hazardous products may also involve changing expectations of what is "clean" and "attractive." Furniture can be handsome in its weathered, lived-in look without polishes and waxes. The garden can be designed with native plants that need less water and no pesticides. The lawn need not look like a putting green. Your home will smell better if you put out flowers, herbs or spices, or simply open the windows rather than using synthetic air fresheners.

There are some products that you cannot do without: motor oil, auto batteries, wood preservatives, and specialty paints are examples. In these cases, the best approach is to conserve and minimize the use of these products. Buy only what you need, use it all up, or give away the excess to someone who will use it. Reuse or recycle products whenever possible.

To assist in identifying the best alternatives for reducing hazardous waste and environmental and health impacts among the options presented in the guide, we have developed a coding system:

***	Excellent waste reduction opportunity; lowest toxicity options.
**	Good waste reduction opportunity; lower toxicity options.
*	Meets minimum requirements; probably hazardous products.

Disposing of Hazardous Wastes

It is important to remember that disposing of household hazardous wastes is not the same as disposing of regular rubbish - hazardous wastes need to be disposed of separately! Why do you need to worry about how you dispose of your waste? Read on to find out how different disposal methods can damage the earth. Improper disposal of hazardous wastes can contaminate our land, water, and air.

Household rubbish is disposed of either in landfills or at an incinerator (on Oahu only). If you dispose of hazardous waste in a landfill you can contaminate groundwater. Groundwater is contaminated when rain water seeps through the layers of garbage in the landfill, picking up contaminants from hazardous household wastes and turning them into leachate. If leachate escapes the landfill, it may contaminate groundwater (which many of us drink), streams, and our ocean.

On O'ahu, household rubbish is burned in an incinerator. If hazardous waste is in your rubbish, heavy metals and other toxins can be emitted to the air from the incinerator's smoke-stack and enter the landfill from the incinerator ash. Burning *any* household wastes on your own is illegal in Hawai'i. Open burning can release toxic gases that are dangerous for humans and animals to breathe.

You may think that washing hazardous wastes down the drain to the sewer is acceptable, but in many cases it is not. Sewers are fed by the drains and toilets in our homes. These drains are connected to a sewage treatment plant that processes the waste and discharges it into the ocean. Not all hazardous wastes can be processed by a sewage treatment plant, and some may actually harm the process. Contact your local county wastewater treatment office **(see pages 6-7)** to get a list of household wastes that can be safely washed down the drain.

Septic tanks and cesspools are used when household is not linked to the public sewer. These systems break down wastes and discharge them into the surrounding land. Septic tanks and cesspools can be damaged by hazardous wastes, and the wastes end up in your backyard, and eventually get into groundwater (which we drink) and the ocean.

Storm drains can be found in roads and parking lots, and they are designed to alleviate flooding and carry rainwater directly to the ocean. Any contaminants from soil, sidewalks, streets, and parking lots that are washed into a storm drain will contaminate our ocean.

Streams in Hawai'i empty into the ocean. Anything poured into streams can contaminate the stream and the ocean. Some hazardous wastes can actually kill fish, coral, and other living things. It is important in Hawai'i that we take care of our ocean now, and prevent further contamination of this important habitat.

Before disposing of hazardous household waste, consider the following:

Can I use up the products, or reuse them?
Can I give the products to a friend, neighbor, relative?
Can I donate the products to a local charity or church?
Can I list the products with HIMEX?

Hawai'i Materials Exchange - HIMEX

The Hawai'i Materials Exchange (HIMEX) matches businesses and individuals that have materials they no longer need, cannot use, or need to dispose of, with businesses and individuals who can use the materials. Materials can range from household hazardous products to furniture left over from remodeling a condominium. HIMEX maintains a computer database of materials Available and Wanted. Coordinators on all the islands are available to assist HIMEX participants in arranging material trades. There is no charge to either party for HIMEX services.

To Access HIMEX:

Phone: Hawai'i: 329-2886, 961-2676
Maui: 667-7744, 572-6668
O'ahu: 586-4240
Kaua'i: 246-8748, 241-6860

Fax: Maui: 572-4817
All other islands: 1-888-991-4000

World Wide Web: http://www.himex.org

E-mail: mrghimex@maui.net

Mail: P.O. Box 121, Wailuku, HI 96793

Household Hazardous Waste Collections

At press time, only O'ahu has a regular household hazardous waste collection. All other islands are in the planning stages of developing a program. Contact your county Department of Public Works **(page 6)** to find out the status of your local collection, and how you might help to ensure that a program is developed.

On Oahu call 523-4774 to get information on household hazardous waste and make an appointment to drop off your wastes.

Hazardous wastes accepted for drop off include:

Algicides	Mercury
Dry Cleaning Solvent	Paint Brush Solvents
Fungicides	Paint Stripper
Gun Cleaning Solvents	Pesticides
Herbicides	Propane Tanks & Cylinders
Insecticides	Swimming Pool Chemical
Kerosene	Turpentine
Lighter Fluid	Wood Preservatives

Important Phone Numbers

For Emergencies: 911
Environmental Telephone Information Line: 586-4350 (Department of Health recording on environmental notices and volunteer opportunities.)

STATE GOVERNMENT

Department of Agriculture: Pesticides Branch - 973-9401
Department of Health: (http://www.state.hi.us/health)
- **Asbestos & Lead Paint Information** - Indoor Air Quality Section, 586-5800
- **Spill Response** - Hazard Evaluation & Emergency Response Office, 586-4249
- **Recycling** - Office of Solid Waste Management, 586-4240
- **Hazardous Waste** - Solid and Hazardous Waste Branch, 586-4226
- **Vector Control** - Vector Control Office, 831-6767

Department of Labor & Industrial Relations:
- **Worker Safety** - Occupational Safety & Health Division, 586-9100

COUNTY GOVERNMENT

Information on Waste Disposal at Local Landfills -
City/County of Honolulu, Department of Environmental Services, 527-5358
County of Maui, Department of Public Works & Waste Management, 270-7874
County of Kaua'i, Department of Public Works, 241-6880
County of Hawai'i, Department of Public Works, 961-8338

Information on Non-hazardous Waste Recycling -
City/County of Honolulu, Department of Environmental Services, Refuse Division, 527-5335
County of Maui, Department of Public Works & Waste Management, 270-7874
County of Kaua'i, Department of Public Works, 241-6880

County of Hawai'i, Department of Public Works, 961-8338

Information on Wastewater and Disposal Down Sewers -

City/County of Honolulu, Department of Environmental Services, Environmental Quality Division, 527-5363
County of Maui, Department of Public Works, Wastewater Reclamation Division, 270-7417
County of Kaua'i, Department of Public Works, 241-6610
County of Hawai'i, Department of Public Works, 961-8338

FEDERAL GOVERNMENT

Information on Federal Hazardous and Solid Waste Regulations -

U.S. Environmental Protection Agency (EPA), Public Information Office, Honolulu, 541-2710
U.S. EPA, Region IX, RCRA Information Line, (415) 744-2074, (M-F, 1-4 p.m., PST, or leave a message)

AUTOMOBILE

Used Motor Oil

Problem: Used motor oil may contain toxins. Disposing of motor oil on the ground, into storm drains, sewers, streams, septic tanks or cesspools, can cause contamination of drinking water and the ocean. Used oil has been found to cause cancer in laboratory animals. Keep your hands clean by wearing gloves.

Maintenance: Fix your car's oil leak! People who would never pour oil down a storm drain allow their cars to leak oil onto the street. When it rains, the oil is quickly transported into storm drains. Have your oil changed professionally; then it will be recycled and you won't have to worry about it!

Alternatives:

** Buy re-refined, recycled oil. Ask your auto supply shop to carry recycled motor oil. This will improve the market for waste oil and recycling opportunities, and will help decrease reliance on virgin oil products. Re-refined motor oil is high quality and will match the performance of virgin motor oil. Be advised, however, that many new car warranties do not cover the use of re-refined oil.

Disposal: Never dispose of used oil on the ground, in your rubbish, in storm drains, sewers, septic tanks, streams, or cesspools! You may take used oil to some gas stations or oil recyclers. When going to a recycler, transport used oil by placing it in a clean plastic milk bottle or similar container. Never mix other products with the oil because it makes recycling very difficult. To dispose of used oil in the rubbish, solidify it by pouring it into a plastic or plastic-lined container with enough kitty-litter, sawdust, or shredded newspaper to fully absorb the oil (an Oil-Eater™ box, available at most drug, grocery, and auto supply stores, also works). After oil is fully absorbed, put the container into the garbage.

Air Conditioners

Problem: If your car's air conditioning system needs a Freon recharge, the system is leaking and needs to be repaired immediately: you are contributing to the depletion of the earth's ozone layer! Find a garage that is certified to operate Freon recovery equipment and that uses certified equipment. To prevent leaking systems, use your air conditioning regularly. If you do not, the seals become brittle and may break.

Alternatives:

*** All 1995 model cars sold in the United States should be equipped with non-ozone depleting air conditioning systems.

* Older models may be retrofitted; the customer should weigh the cost of repairing an old system, upgrading it to a non-Freon system or doing away with air conditioning in the car.

Disposal: You should not have to dispose of Freon. See **pages 5-6** for more information about household hazardous waste collections.

Antifreeze

Problem: Highly toxic ethylene glycol, the main ingredient in antifreeze, has a sweet smell and taste that is attractive to children and pets. A small amount can poison a person. Clean up spills immediately and never leave antifreeze in open, unattended containers. Pouring antifreeze down storm drains delivers the ethylene glycol and metal particles, including lead from your radiator, into streams and the ocean. Remember to store antifreeze in a well-ventilated area away from children and pets.

Disposal: Never pour antifreeze down sewers, into septic systems, cesspools, streams, storm drains, or on the ground. Avoid creating puddles of antifreeze since animals and children could be poisoned by this liquid. Drain used antifreeze into an oil change pan (be sure oil residue is wiped out!). Collect two gallons from your radiator plus two additional gallons of flush water. This will capture most of the metal particles toxic to fish. Contact your local gas station to see if they will accept your used antifreeze for recycling. See **pages 5-6** for more information about household hazardous waste collections. If you can't recycle it, absorb the antifreeze. Pour antifreeze into a plastic or plastic-lined container with enough kitty litter, sawdust, or shredded newspaper to fully absorb the liquid (an Oil-Eater™ box, available at most drug, grocery, and auto supply stores, also works). After antifreeze is fully absorbed, put the container into the garbage.

Car Wash

Problem: Chemicals in soaps and detergents used to wash cars are toxic to fish and other marine life. If the dirty, soapy water from your car wash goes into storm drains or streams it can kill some marine animals.

Alternatives:

*** Take your car to a commercial car wash. Their wastewater either goes to a wastewater treatment plant or is recycled at the car wash.

*** Use only water to wash your car; detergent can damage the paint.

** Use a soap that biodegrades quickly, or a dry wash product.

** Create your own cleaning mixture with 2 tablespoons of mild dish detergent or 1/4 cup soap flakes in 2 gallons of warm water.

** For chrome polish: apply a paste of baking soda and water with a sponge. Let the paste set for a few minutes, then rinse and wipe dry with a soft cloth.

Disposal: Never allow soapy wash water to go down storm drains. If you wash your car near a storm drain, use only water. Wash your car in the yard so that the water goes into the soil. This way, the soap may be filtered by the soil and biodegrade, and the lawn will get watered!

Degreasers

Problem: Auto part degreasers are usually made of solvents that evaporate quickly. The fumes are often toxic and flammable. Use these products outside or in a well-ventilated area with a fan and open windows. Always wear gloves to keep hands clean, and consider use of a respirator.

Other safety tips: Never smoke while using degreasers. Never use gasoline to clean auto parts; evaporating gas contributes to air pollution and is highly flammable.

Alternatives:

*** Use citrus-based degreasers and hand cleaners. (Test product on your skin before using; some people react to citrus-based products.) Avoid products that contain methylene chloride which is known to cause cancer in laboratory animals.

*** Rub greasy hands with baby oil, clean off with a dry cloth, then wash with soap and water.

*** Steam clean your engine at a car wash equipped with coin-operated equipment.

*** D99 by Tiodize™ is a good degreaser that won't harm the environment.

*** Rather than degreasers to absorb grease and oil spills on concrete floors, sprinkle cornmeal, sawdust, fuller's earth (can be purchased at drugstores and building supply centers), or kitty litter; allow to sit for several hours, then sweep into a plastic bag and place in rubbish.

Disposal: Never dispose of degreasers down the sewer or storm drains. Use up the product or see if your local service station, auto shop class, or neighbor can use up the product. See **page 6** for information on household hazardous waste collections.

Oil Filters

Problem: Used oil filters contain some waste oil. The oil may drain out and cause environmental contamination when disposed of in landfills.

Alternatives:

*** Purchase a permanent oil filter.

Disposal: Some local service stations recycle oil filters. If you can't find one that does, drain filters into the used oil pan for 24 hours and place filter in a plastic bag and put in the rubbish.

Gasoline

Problem: Gasoline is flammable and toxic, and can be one of the most dangerous products found in the house. If children sniff gasoline, they could develop lung and central nervous system damage. Avoid breathing gas fumes, and never use gasoline to clean auto parts or hands.

Storage: If you must store gas, use only containers designed for this and leave a couple of

inches for vapor expansion. Store the container in a secure, well-ventilated area, away from potential sources of heat, sparks or flame. Keep out of reach of children. If left over sox months, gas can go stale and should not be used in engines.

Alternatives:

Car:

*** Sell your car! Watch for new developments in electrical and solar-powered cars. (Two companies in Hawai'i may soon produce these cars for commercial use!)

*** Walk, bike, car pool, or use public transit.

** Drive a fuel-efficient car and keep it tuned. Plan vehicle trips efficiently ("cold engine" starts really pollute).

** Modify your engine to use propane, methanol, natural gas, or electricity. They run cleaner than gasoline.

Gasoline Powered Mowers:

*** Buy a manual mower. There are no fuel costs, no pollution, and you get exercise!

* Only put in as much gas as you will need on a given job.

Disposal: Never pour gasoline onto ground, into storm drains, sewers, or streams. Use up gasoline or give it to someone who will. See **pages 5-6** for information on household hazardous waste collections.

Windshield Washer Solution

Problem: Commercial products contain alcohol to prevent freezing, and a detergent. The alcohol contributes to air pollution and is poisonous. In our mild climate, the alcohol is not necessary.

Maintenance: Never use a vinegar mixture. It may damage the windshield washer pump.

Alternatives:

*** Use plain water, or water with a touch of liquid soap.

* Use a solution of 3:1 (water:fluid) of the average ready-to-use commercial windshield washer solution.

Disposal: Use it up or give it to someone else who can. If you must, pour fluid into an Oil Eater™ box or pour into a container with enough kitty-litter or other material to absorb all the liquid, then dispose of in the rubbish.

Automotive Batteries

Problem: Automotive batteries, also known as lead-acid batteries, contain sulfuric acid and lead, both of which are highly toxic. Lead can contaminate groundwater, and acid can severely burn skin and cause blindness. Be careful not to spill or drain the fluid from the battery. Improperly disposing of batteries contaminates soil with lead. Children who play in lead-contaminated soil may have serious brain and central nervous system damage.

Adults may experience kidney damage, peripheral nervous system damage, anemia, and stomach pain.

Maintenance: Use a paste of baking soda and water to clean away corrosion; after reconnecting the clamps to the terminals, coat with petroleum jelly to prevent future corrosion.

Disposal: It is illegal to dispose of automotive batteries in the rubbish. Trade in your old battery when purchasing a new one, or turn it in to a local retailer or recycler. Anyone who sells batteries in Hawai'i is required to take your old battery when you buy a new one. See **pages 5-6** for information on household hazardous waste collections.

PAINT PRODUCTS

Paint

Problem: Most household paints are either water-based (latex) or oil-based. Oil-based paints contain solvents that are flammable and can harm marine life if they get into the ocean. The labels of oil-based paints will say, "combustible - keep away from heat and flame," "clean up with mineral spirits," "contains petroleum distillate," or "harmful or fatal if swallowed." Latex paints are safer and require only water for clean-up. When planning a painting project, get help in estimating the amount of paint you will need to avoid having leftover paint.

Safety: Especially when using oil-based paints, paint in a well-ventilated area, or paint outside. The fumes from oil-base paints are toxic and flammable.

Alternatives:

*** Buy only as much paint as you need for a job. Patronize stores that will give you expert help. Many paint stores will take back unopened cans of standard colors (custom colors may not be returned.)

*** Choose water-based (latex) paints.

*** Use whitewash for fences and house foundations. Recipe for whitewash for wood, glass, or metal surfaces: Dissolve 15 pounds of salt or 5 pounds of dry calcium chloride in 5 gallons of water. In a separate container soak 50 pounds of hydrated lime in 6 gallons of water. Combine the mixtures, stir and thin with water until it is the consistency of whole milk. Yields 10 gallons (proportions can be reduced.)

Disposal: Never pour paint down the sewer, storm drains, into streams, on the ground, or into the rubbish. If you have leftover paint, find a local theater group, school, or friend to use it up. Suggestion: list on HIMEX (see **page 5)**.

Latex: If you can't give it away or use it up, paint latex on cardboard or let small amounts (less than l pint) evaporate outdoors. When the paint is hard, wrap the container in

newspaper and dispose of in the rubbish.

Oil-based: If you can't give it away or use up, see **pages 5-6** for more information on household hazardous waste collections. If no program is available, you may solidify small amounts of oil-based paints. Solidify paint by pouring it into a plastic or plastic-lined container with enough kitty-litter, sawdust, or shredded newspaper to fully absorb the paint (an Oil-Eater box, available at most drug, grocery, and auto supply stores, also works). After paint is fully absorbed, put the container into the rubbish.

Paint Thinners

Problems: Paint thinners are necessary when you use oil-based paints. Turpentine and mineral spirits are commonly used in thinning and cleaning up paints and varnishes. Both are flammable and toxic, although mineral spirits are less toxic. Wear a respirator with organic vapor cartridges, goggles, and heavy rubber or nitrile gloves. Use paint thinners in well-ventilated areas, and take plenty of fresh air breaks. If it gets onto skin, wash off immediately with soap and water. Store thinners in well-ventilated area, away from sources of ignition and children and pets.

Alternatives:

*** Use latex paints instead of oil-based paints; they require only water for clean up. Avoid using oil-based paints that require solvent thinners for thinning and clean up.

** Buy environmentally safer thinners like AFM™, Livos™ and Bio Shield™.

Disposal: Never dispose of paint thinner into the sewer, storm drains, streams, on the ground, or into the rubbish. If you have leftover paint thinner, recycle it (see below) or find a local theater group, school, or friend to use it up. See **page 5** for list on HIMEX. If you cannot recycle it, give it away, or use it up. See **page 6** for information about household hazardous waste collections.

Recycling: Recycle dirty paint thinner for reuse by pouring it into a clearly labeled container with a tight seal. Store for several months until the paint sludge settles on the bottom. Carefully pour the clean solvent off the top or pour through cheesecloth; this solvent can be reused. Solidify the paint sludge by putting it into a plastic or plastic-lined container with enough kitty-litter, sawdust, or shredded newspaper to fully absorb the sludge. After sludge is fully absorbed, put the container into the rubbish.

Chemical Paint Strippers

Problem: Solvents used to strip paint may cause serious health effects if they come into contact with the skin or eyes or are inhaled. The most dangerous solvents are halogenated, and are often found in paint strippers, spot removers, and degreasers. Avoid strippers containing methylene chloride, trichlorethylene (TCE), benzene, 1,1,1-trichloroethylene (TCA), xylene, or toluene.

Never eat or drink around solvents. The fumes can be absorbed by food or utensils and

you may ingest them. Never smoke when using solvents, and never use them near sources of ignition (some, not all, may be flammable). Read the label carefully, and follow all precautions. Use heave rubber or nitrile gloves, goggles, and a respirator with organic vapor cartridges. Work in well-ventilated areas or outside when possible. Don's use solvents on hot muggy days.

Alternatives:

** Use water-soluble paint strippers; they contain less-hazardous ingredients.

Disposal: Never dispose of strippers into the sewer, storm drains, streams, on the ground or into the rubbish. If you have leftover paint stripper, find a local theater group, school, or friend to use it up. See list on HIMEX **(page 5)** or **page 6** for information on household hazardous waste collections.

On Oahu: If the stripper is lye based, and you are connected to the public sewer system, you may flush it down your drain with plenty of water. If it is not lye based, see **pages 5-6** for more information about household hazardous waste collections.

All islands except Oahu: If you have a non-halogenated stripper (does not contain any ingredients with 'chlor' in the name), you may solidify small amounts (less than l cup) by pouring it into a plastic or plastic-lined container with enough kitty-litter, sawdust, or shredded newspaper to fully absorb the stripper. After paint-stripper is fully absorbed, put the container into the rubbish. For other paint strippers, store until a household hazardous waste collection is available.

Lead-Based Paints

Problem: Homes built before 1978 are likely to have surfaces painted with lead-based paint. If paint chips or is stripped from these surfaces, you and your family can be exposed to lead. The dust and chips from lead-based paint are dangerous when swallowed or inhaled. Lead is especially dangerous to small children and pregnant women. Hire a professional to remove any lead-based paint from your home. For more information on health effects call the Hawaii Department of Health, Lead Surveillance Program at: (808) **733-9027**. For more information on removal of lead-based paint call the Indoor Air Quality Section at **586-5800**.

Alternatives: (Lead-based paints are no longer available for use for household painting.)

** Rather than stripping old lead-based paint, use sealants and apply to old paint and cracks to contain the lead.

Spray Paints

Problem: Spray paints are contained in aerosol cans. These are pressurized containers that contain paint and propellants (usually petroleum distillates). Aerosols are easily inhaled since the particles are very small. Ozone depleting propellants are no longer used in aerosol products, but many aerosol propellants contribute to air pollution. In laboratory

studies, some propellants have been found to harm the heart and central nervous system. Aerosol cans are hazardous until they are completely empty, so it is best to use up the product. Never heat aerosol cans; they can explode with the force of a bomb. Never smoke while using aerosols.

Alternatives:

*** Use a paint brush.
** Use a manual spray paint gun.

Disposal: Use up all of the product as intended or give to someone who will. If you must dispose of a partially used can, discharge the contents into a deep cardboard box outdoors, allow to dry, and discard. Empty aerosol cans can be disposed in the rubbish.

Wood Preservatives

Problem: Wood preservatives generally combine a solvent and a pesticide. These mixtures are highly toxic and some are flammable. Do not use old products that contain pentachlorophenol (PCP), creosote, tributyltin oxide, chromated copper arsenate, or folpet. Do not burn wood treated with wood preservatives because it releases toxic chemicals into the air.

Alternatives:

*** Water-based preservatives that seal wood and protect it from water rot and insects are available.
*** Use types of wood, like cedar, that are naturally resistant to insects and wood rot.
*** Use wood substitutes, like plastic lumber, in areas where insects and wood rot are problems.
** Use a water sealer or polyurethane to prevent wood rot.
* Buy pressure-treated lumber (preservatives have already been applied). This eliminates the need to handle wood preservatives and reduces exposure to hazardous chemicals.

Disposal: Never dispose of wood preservatives in the sewer, storm drain, stream, on the ground, or in the rubbish. Use up the product as intended or give to someone who can. See **pages 5-6** for more information about household hazardous waste collections.

Wood Stains & Finishes

Problem: Wood stains and finishes are usually oil-based, but water-based products are now available. Oil-based stains contain solvents that are flammable and can harm marine life if they get into the ocean. The labels of oil-based stains will say, “combustible - keep away from heat and flame,” “clean up with mineral spirits,” “contains petroleum distillate,” or “harmful or fatal if swallowed.” Water-based stains are safer and require only water for clean up. When planning a staining or finishing project, get help in estimating the amount of product you will need to avoid leftover material.

Safety: When using oil-based stains, paint in a well-ventilated area, or paint outside. The fumes from oil-based stains are toxic and flammable.

Alternatives:

*** Buy only as much stain as you need for a job. Patronize stores that give you expert help. Many paint stores will take back unopened cans of standard product.

*** Use water-based stains.

** Use finishes derived from natural sources, such as kukui oil, shellac, tung oil, and linseed oil. (These are often flammable, but usually less toxic.)

Disposal: Never dispose of stains and finishes into the sewer, storm drains, streams, on the ground, or directly into the rubbish. If you have leftover products, find a local theater group, school, or friend to use it up. See list on HIMEX **(page 5)**. See **page 6** for information on household hazardous waste collections.

Water-base: If you can't give it away or use it up, paint the water-based stain on cardboard or let small amounts (less than l pint) evaporate outdoors. When the stain is hard, wrap the container in newspaper and dispose of in the rubbish.

Oil-base: If you can't give it away or use up, see **pages 5-6** for more information about household hazardous waste collections. If no program is available, you may solidify small amounts of oil-based stains. Solidify stain by pouring it into a plastic or plastic-lined container with enough kitty-litter, sawdust, or shredded newspaper to fully absorb it (an Oil-Eater™ box, available at most drug, grocery, and auto supply stores, also works). After stain is fully absorbed, put the container into the rubbish.

***

STORAGE CLOSET

Household Batteries

Problem: Some dry cell batteries contain toxic metals such as mercury, cadmium, and lead. These metals are contained within the battery casing and pose no risks while in use. It is when batteries are discarded that the release of these toxic metals in landfills or incinerators becomes a concern.

Alternatives:

*** Buy solar-powered devices like calculators and radios.

*** Nickel hydride batteries are environmentally safe. They contain no mercury, no lead, no cadmium, and are rechargeable with a solar battery charger requiring no electricity!

** Use rechargeable nickel-cadmium (no-cad) batteries. They hold a charge only 1/3

as long as an alkaline battery, but can be recharged approximately 1,000 times, saving you money! No-cads are sold with a life-time warranty. It is best to completely drain no-cads before recharging.

** Use rechargeable alkaline batteries.

* Buy low-or no-mercury brands of standard alkaline batteries. Use for low frequency situations like smoke alarms.

* Change all batteries in a devise at the same time. The weakest battery determines the power.

Disposal: Never dispose of batteries anywhere but in the rubbish. Since the state does not have a battery collection program at this time, wrap batteries in newspaper and put them in the rubbish.

Light Bulbs

Problem: Typical light bulbs used for table lamps and ceiling fixtures pose no health risk. However, if you have fluorescent tube lights, often used in garages or work-sheds, they may contain mercury vapors. These vapors can be harmful if you breathe them in. The bulbs themselves are dangerous since they can explode if you drop them.

Alternatives:

*** Switch all your light bulbs to energy-efficient bulbs. Compact fluorescent bulbs are available from light bulb stores. There are many designs now on the market that can fit any household need from table lamps to ceiling fixtures to replacing your old tube fluorescent bulbs (be sure to ask if you need to buy a separate ballast for these tube lamps). Unlike their predecessors, these bulbs do not flicker and provide adequate light for household needs. These bulbs also reflect the true colors of objects rather than the yellowish tint of the old incandescent bulb. Fluorescent bulbs are cooler than incandescents so they won't add to head in your home. While these bulbs cost more than incandescents, they will last much longer and cut your energy bill. They will save you money!

Disposal: If you are only disposing of a few bulbs at a time, be sure to wrap them tightly in newspaper ant throw them in the rubbish. If you are buying replacement bulbs, use the packaging from the new bulb to package the old one for disposal.

Barbecue Lighter Fluid

Problem: Lighter fluid adds to air pollution when burned. There are alternatives to starting your barbecue that are better for the environment and safer for you.

Alternatives:

*** EcoStarts™, made from wood scraps and old candles, is a great way to avoid using lighting fluid.

*** Use an electric metal charcoal starter. A typical one is a 10" tall, hallow, metal

cylinder with holes and a handle, available in supermarkets and hardware stores.

Disposal: Never dispose of lighter fluid in the sewer system, in storm drains, in streams, or on the ground. Use it up or give it away. See **pages 5-6** for information about household hazardous waste collections.

Smoke Alarms

Problem: Some battery-powered (ionization type) smoke alarms are made with a radioactive material.

Alternatives:

*** Choose photo-electric detectors.

Disposal: Most manufacturers will accept used smoke alarms, and will dispose of the radioactive material properly. Look on the back of the alarm for the manufacturer and send it back to them. See **pages 5-6** for more information about household hazardous waste collections.

***

KITCHEN & BATHROOM

Aerosol Cans

Problem: Many household products are packaged in aerosol containers. Examples include disinfectants, furniture polishes, hair sprays, paints, oven cleaners, pesticides, room deodorizers, and tub and tile cleaners. These pressurized containers contain the product and propellants (usually petroleum distillates). Aerosols are easily inhaled since the particles are very small. Ozone depleting propellants are no longer used in aerosol products but many aerosol propellants still contribute to air pollution. Some propellants have been found, in laboratory studies, to harm the heart and central nervous system. Aerosol cans are hazardous until they are completely empty, so it is best to use up the product. Never heat aerosol cans; they can explode with the force of a bomb. Never smoke while using aerosols.

Alternatives:

*** Aerosol sprays are often no more effective than using liquid products in non-aerosol containers. Purchase products in pump spray, roll-on, liquid, or non-aerosol spray.

Disposal: Never let an aerosol can become heated. Storage in direct sunlight, car trunks, and near furnaces, stoves and ovens can result in the product exploding. Never smoke while using aerosols. If an aerosol can is completely empty, dispose of it in the rubbish. If there are non-pesticide ingredients in the can, it is best to completely use the product. If you must dispose of a partially used can, discharge the contents of the container into a

deep cardboard box outdoors and allow to dry. When the can is completely empty, throw it and the cardboard box into the rubbish.

Cooking Oil

Problem: Used cooking oil poured down the drain contributes to sewer line backups. The oil builds up on the sewer pipe walls and decreases the flow to the sewage treatment plant. The sewer line may become clogged and an overflow may result.

Alternatives:

*** Use pump spray oils - the less oil you use, the better for your health!

Disposal: Pour your used oil into glass containers, seal tightly. Dispose in rubbish when full.

Refrigerator

Problem: Freon is used to keep your refrigerator cold. If your refrigerator is not cooling, the system is leaking and needs to be repaired immediately: your are contributing to the depletion of the earth's ozone layer!

Alternatives:

* Look for a new refrigerator that does not use Freon as a coolant. Ask the salesperson for more information about these.

Disposal: You should not have to dispose of Freon. If you are having your Freon recharged, ask the service personnel if they are certified to use Freon recovery equipment. If you need to dispose of your refrigerator, see **page 6** for your refuse department's phone number and ask them about bulky item disposal.

Thermometer

Problem: Many thermometers contain mercury which is a highly toxic material. You can be poisoned by absorbing it through the skin or inhaling it. Be very careful not to break mercury thermometers, and store them in a safe place out of reach of children.

Alternatives:

*** Choose an electronic or red liquid thermometer.

Disposal: If a thermometer breaks, use a wooden toothpick or a piece of cardboard to push the mercury droplets together into a covered container. After the mercury has been collected, contact a dentist's office to see if they can take it, or see **pages 5-6** for information about household hazardous waste collections.

***

CLEANERS

Problem: Surface cleaners include a wide range of products found in the home, and a wide range of environmental health risks. Ammonia and chlorine bleach are found in many all-purpose cleaners. Ammonia attacks the lungs, and chlorine forms cancer-causing compounds when released into the environment. If accidentally mixed together, they form deadly chloramine gas. Exercise caution when using cleaners with bleach. **Dish cleaners** are often detergents, not soaps. Detergents are derived from scarce petroleum, are non-biodegradable and usually contain chemical additives such as artificial fragrances and colors. Detergents cause more child poisonings than any other household product. Automatic dish washing powder contains harsh detergents with high concentrations of phosphates. **Disinfectants** are a mixture of toxic chemicals including phenol, formaldehyde, cresol, ammonia, and chlorine. **Drain openers** contain lye, hydrochloric and sulfuric acids which can burn human tissue, causing permanent damage. If not used precisely according to instructions, some products can explode. They are especially dangerous as a poisoning hazard with children. **Glass cleaners** usually contain ammonia. When you use them, you may breathe the mist which can be harmful. **Oven cleaners** contain lye, a powerful caustic substance that can burn and disfigure. Exposure to the fumes can scar lungs. Splash it in your eye and you may be blinded. **Mildew removers** contain pesticides. The chemicals used to kill mold and mildew may have side effects you did not bargain for, such as eye and skin irritation and lung damage. **Rug, carpet, and upholstery cleaners** are often strong solvents combined with detergents. These can be flammable and irritants. **Toilet bowl cleaners** contain chlorine and hydrochloric acid, which can burn your skin and eyes. Manufacturers' warning labels tell you not to breathe the product and the fumes alone can corrode metal. Avoid solid toilet bowl deodorizers that contain paradichlorobenzene (there is evidence that it causes cancer in laboratory animals). General toxic fumes can escape even from closed containers. Swallowing some cleaning products can cause death. Keep all products out of reach of children and pets; if flammable, store away from heat and sources of ignition. Read and follow labels carefully!

Environmentally Safer Cleaners

It is much better to buy vegetable or citrus-based soaps instead of petroleum-based soaps and detergents. There are numerous cleaners you can buy that will give you good results rather than buying a toxic cleaner. Many of these can be found in your grocery, drug, health food, or environmental product store. Some brand names include:

EarthRite
EarthWise
Ecolo
Ecover CitraSolf
Dr. Bronner's
Granny's Old Fashioned
Orange Muscle
Simple Green
Tiodize

Disposal: Never mix household cleaners. Bleach and ammonia reach to form a deadly gas. Never dispose of highly toxic or corrosive materials down the drain. Do not pour products in streams, storm drains, or on the ground. If a product is normally flushed down

the drain during use, the product can be disposed by pouring it down the drain slowly with running water. Try to use up the products as they were intended or find someone else who can.

Surfaces

Alternatives: You'll find that weak acids like vinegar and lemon juice are good at cutting grease. Find a combination that works for you.

*** Mix: 1 quart hot water
1 tsp. Vegetable oil-based soap/detergent
1 tsp. Borax
2 tbsp. Vinegar
Note: vinegar acts as a mild acid to cut grease; borax is used as a water softener, to prevent soapy deposits.

*** Mix: 2 cup vinegar
1 quart of warm water

*** Dissolve baking soda in hot water.

Dishes

Alternatives:

*** Hand-washing: Use vegetable oil-based soaps. Use liquid soap such as castile, or rub a damp dish cloth over a bar of soap. Look for naturally derived or glycerine-based soaps.

*** Dishwater: Choose a detergent with low phosphate content (read labels). Sprinkle a handful of baking soda over the dishes instead of filling the open dispenser with detergent. In soft water use 50% borax and 50% washing soda, add additional borax for harder water.

*** Camping: Never wash with soap directly in a lake or stream. The chemicals in soap are toxic to fish and other aquatic life. Wash in buckets or pots, and use soap that biodegrade quickly. Drain wash water onto the ground, well away from the water's edge.

Disinfectants

Alternatives:

*** Soap and hot water is sufficient for most of your household cleaning needs.

*** Keep surfaces dry; bacteria, viruses, mildew, and mold generally can't live without dampness.

Drain Openers

Alternatives:

*** Put a strainer in all drains

*** Pour boiling water down the drain once a week to keep it unclogged.

*** Mix: Handful of baking soda
2 cup vinegar

Pour down drain and cover, sealing in the carbon dioxide gas bubbles as they agitate the clog. Let sit 15 minutes. Rinse with 2 quarts of boiling water. Follow with plunger.

*** Use metal snake to unclog stubborn drains.)It's what the professionals use!)

*** Roots in drains: Do not use copper sulfate-based root control products for drains blocked by roots. They release copper into the streams and ocean and are toxic to marine life. Have drains cleared by a professional who uses mechanical root removal techniques or non-metallic herbicides.

*** Liquid Life Forms Bacterial Digestant Deodorant™ is an excellent drain cleaner and will clean away moss and mildew outdoors as well.

Glass

Alternatives:

*** First, to remove the wax build up often deposited by commercial glass cleaners, clean glass with rubbing alcohol. After this is done once, it will not be necessary to repeat. Use gloves and work with good ventilation; alcohol is flammable. Clean glass with a mixture of one part white vinegar and one part warm water.

*** Clean with a small amount of dishwashing liquid in 1 gallon water. Use a quality squeegee; this is the pro's secret to streakless windows.

Oven

Alternatives:

*** Protect oven floor from spills with aluminum foil. Periodically scrub the oven with baking soda and water.

*** Mix: 2 tablespoons liquid dish soap
2 teaspoons borax
2 cups warm water
Apply and let sit for 20 minutes, then scrub with steel wool and non-chlorine scouring powder. Rub very dirty areas with a stick of pumice.

*** Clean glass oven door with Bon Ami™. Use a razor blade (in a holder) or a hard spatula for tough spots.

*** Pour lots of salt on fresh spills and scrape them off after the oven cools.

* Use a non-caustic oven cleaner.

* Note: Don't use abrasive cleaners on self-cleaning ovens.

Mildew Removers

Alternatives:

*** Wash bath and sink grout often so mold can't get established. Always air out damp areas.

*** Seal grout after cleaning by painting grout with a water sealer.

*** To inhibit mold and mildew, wash area with 2 cup borax and l gallon hot water.

*** Keep a small squeegee in the shower to dry the walls and prevent mildew.

*** Scrub mildew spots with borax/water mix and a nylon scouring pad. If plaster wall is penetrated by mold, leave a borax/water paste on the wall for a couple of days.

Vacuum off.

*** If the problem is not severe, scrub mildew with a vinegar and salt paste.

*** To clean mildew from a plastic shower curtain, try the following:
Clean with 2 cup borax and l gallon water, or
Clean with vinegar full strength, then rinse, or
Machine wash plastic curtain with a towel. Add l cup vinegar to rinse cycle.

Rug, Carpet, & Upholstery

Alternatives:

*** Vacuum regularly to keep dirt from getting ground in.

*** Clean up spills immediately.

*** Pour club soda on a spill and blot.

*** Use a non-aerosol, soap-based cleaner.

*** Mix: 1 teaspoon vegetable oil-based soap/detergent
1 teaspoon borax
2 tablespoons vinegar
Note: Vinegar is used here as mild acid to cut grease; borax is used as a water softener and is especially good in areas with hard water to prevent soapy deposits.

Toilet Bowl

Alternatives:

*** Clean and deodorize with 2 cup borax and 1 gallon water.

*** Pour in 1 cup of borax; let sit overnight.

*** Coat stains with paste of lemon juice and borax. Let sit about 20 minutes and scrub with bowl brush.

*** Clean frequently with a solution of baking soda and water; sprinkle baking soda around the rim.

Tub and Sink

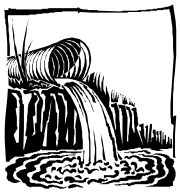
Alternatives:

*** Use baking soda as a scouring cleanser.

*** Use non-chlorinated cleaners, like Bon Ami™, which is very effective and doesn't dissolve as fast as baking soda.

*** To remove mineral deposits around faucets, cover deposits with strips of paper towel soaked in vinegar. Let set for 1 hour and clean.

***



LAUNDRY

Problem: Laundry products are often non-biodegradable detergents made from petroleum. Even phosphate-free. Biodegradable detergents can contribute to water pollution. **Bleach** is a reactive and irritating

substance. If combined with ammonia, a toxic gas is formed. **Dry cleaning** uses harsh chemicals and ozone-damaging CFCs which are harmful to the environment and can also weaken natural or synthetic fibers. Remove the plastic bags from dry cleaned clothes and air them out before hanging in your closet. This will limit your exposure to perchloroethylene, the solvent used in dry cleaning. **Spot and stain removers** are often harsh solvents that are flammable and toxic. These products may come in aerosols which adds to the risk of inhaling them.

Disposal: Never dispose of laundry products in storm drains, streams, ocean, or on the ground. Use them up according to directions or give them to someone who can. If products are normally flushed down the drain after use, pour small amounts in your drain while flushing with plenty of water. Do not throw away aerosol cans if the ingredients are still in the can. If you cannot use the product, discharge the contents into a deep cardboard box outdoors. Dispose of the empty can and box in rubbish. Spot and stain removers can contain hazardous substances. If you cannot use them up according to the directions, see **pages 5-6** for information about household hazardous waste collections.

Laundry Detergents

Alternatives:

*** Use laundry soap and add a water softener, like borax, washing soda, or baking soda, to prevent soap residue.

*** Use products that contain “washing soda.” Washing soda brightens fabrics, costs less than bleach, and is safer.

*** Soak heavily soiled items in warm water with 2 cup washing soda for 30 minutes.

*** Look for laundry disks; they eliminate the need for detergent and fabric softener. Although expensive, they last for years.

* Use dry detergents that don’t contain phosphates. Look on the box for the words, “contains no phosphates.” Liquid detergents are phosphate free.

Whiteners

Alternatives:

*** Use non-chlorine dry bleach or washing soda to whiten clothes.

*** Use a hydrogen peroxide-based liquid.

* If you use chlorine bleach, use half the recommended amount and add 1/4 to 2 cup baking soda per load.

Dry Cleaning

Alternatives:

*** Many clothing items can be safely hand-washed in cold water. Washable knits, woolens, and silk fabrics required the use of a gentle cleansing product with a low detergent level.

*** Buy clothes that don’t require dry cleaning. Ask questions about cleaning options when you buy clothes.

Fabric Softener

Alternatives:

*** To freshen and soften natural fiber clothing, add 1 cup vinegar or 1/4 cup baking soda during final rinse.

*** To reduce “static cling” in synthetics, line dry clothes, or remove clothes from the dryer while they are still slightly damp and line dry.

Spot and Stain Remover

Alternatives:

*** Make a paste of borax, washing soda, or baking soda. Rub into stain with toothbrush. Launder as usual.

*** Borax: For acid stains, add 1 tablespoon of borax to 1 cup warm water. Soak washable fabrics in solution for 10 to 15 minutes.

*** Glycerine: Works for any color or fabric. Softens stain, making removal easier. Dilute 1 part glycerine to 1 part water. Work into fabric. Allow to set for 1 hour. Remove by sponging with warm water.

Guidelines: Take action as soon as stain occurs. For non-greasy stains, rinse or sponge with cold water. Leave washable items to soak until you can treat them (never soak wool, silk, or fabrics with flame resistant finishes.) Always test any removal treatment on an inconspicuous area of the fabric before beginning treatment of the stained portion. Work on stain from its outer edges toward the middle to prevent the stain from spreading or leaving a “ring.” Use a pad of white absorbent cloth to dab stain-removing solutions. “Lift” stains off fabric by dabbing rather than rubbing. Treat surface stains from the underside of fabric.

Recipes:

Blood: Immediately clean stain with club soda, or sponge with cold water.
Mix 1/4 cup borax in 2 cups water and sponge with cold water and rinse; repeat as necessary. Or, dab with hydrogen peroxide.

Chocolate & Coffee: Soak in cold water, rub with soap and a borax solution, rinse, then launder. If necessary, rub with a borax/water paste. Or, dab stain with glycerine solution, allow to set for 10 minutes, wash at recommended temperature for fabric.

Fruit: Soak in cold water for 30 minutes. Rub soap into remaining stain; then wash or “bleach” with lemon juice and sunlight. Or, soak in vinegar.

Grease: Apply paste of cornstarch and water. Brush off when dry. Or, cover spot with baking soda or corn meal, let it absorb the grease and brush off. Or, scrub spot with toothpaste. Or, treat stain with eucalyptus oil then wash or sponge clean. Or, sponge grease spot on suede with a cloth dipped in white vinegar; let dry, brush off.
Ink: Saturate stain with milk. Or, sponge stain with alcohol. Or, apply cream of tartar and lemon juice paste, set for 1 hour, scrub and launder. Or, use hair spray from pump bottle, scrub and launder.

Lipstick: Rub with cold cream or shortening to dissolve color, rinse area with solution of washing soda and warm water to remove grease, then wash in soapy water.

Oil: Rub white chalk into stain before laundering. Or, scrub spot with toothpaste.

Perspiration: Sponge stain with a weak solution of white vinegar or lemon juice and water.

Tea: Stretch fabric over a basin and pour boiling water over the stain; wash as usual.

Wine: Blot with pater towels to absorb wine. Then apply either club soda, rubbing alcohol, or borax to blot out the stain.

***

POLISHES

Problem: Floor cleaners and wood polishes contain phenol which causes cancer in animals. Ingestion of as little as one thimbleful of phenol can cause symptoms ranging from circulatory collapse to death. Wood polish may also cause severe skin irritation. Residual vapors contaminate your home long after application. **Furniture polishes** contain petroleum distillates which are flammable and very dangerous if swallowed. Avoid contact with skin, and work in well-ventilated areas. **Metal polishes** give off fumes from phosphoric and sulfuric acids and ammonia which pollute the air in your home.

Disposal: Furniture, metal and wood polishes are very toxic to aquatic life. Do not pour these products in streams, storm drains, in your sewer system, or on the ground. Use up the products according to the directions or find someone who can. See **pages 5-6** for more information about household hazardous waste collections.

Floors & Wood

Alternatives:

*** For vinyl tile and linoleum, mix: 1/4 cup white vinegar
1/4 cup washing soda
1 gallon warm water

*** For scuff marks, scrub with toothpaste.

*** For wood floors, damp mop with a mild vegetable oil soap and dry immediately.

*** Polish finished wood with butcher's wax once or twice a year.

*** for painted or varnished wood floors, mix: 1 tsp. washing soda with 1 gallon hot water.
Rinse with clear water, dry immediately.

*** For Polyurethane-sealed wood floors, mix: 1/4 cup white vinegar with 1 gallon water.

Dry immediately.

Furniture

Alternatives:

*** Polish unvarnished wood with almond, walnut or olive oil. Work it in well and wipe off excess. Oily surfaces attract dirt and insects.

*** To clean and polish varnished wood, use a mild vegetable oil soap.

*** Use linseed oil to revitalize old furniture.

*** To wash painted wood, mix: 1 tsp. Washing soda with 1 gallon of hot water. Rinse with clear water.

Metal

Alternatives:

Brass: Mix: 2 tsp. Salt
2 cup white vinegar
Add flour to form paste. Apply thickly. Let sit for 15-30 minutes. Rinse thoroughly with water to avoid corrosion.

Copper: Polish with paste of lemon juice and salt.

Silver: Boil silver 3 minutes in a quart of water containing:
1 tsp. Baking soda
1 tsp. Salt
A piece of aluminum foil.
Or, rub silver with a baking soda/water paste and soft cloth; rinse and polish dry. Or, rub with toothpaste. Use a toothbrush to clean raised surfaces. Be careful not to scratch surfaces.

Chrome: Wipe with vinegar, rinse with water, then dry. Or, shine chrome fixture with baby oil and soft cloth. (This is good for removing soap scum off faucets.)

Stainless Steel: Clean and polish with a baking soda/water paste or a cleanser like Bon Ami™.

Shoe polish: Avoid products containing trichloroethylene (TCE), trichloroethane (TCA), methylene chloride, nitrobenzene (chemicals which cause central nervous system or liver damage if swallowed or inhaled). Use conventional shoe polish; use in well-ventilated areas.

Leather shoes: Apply olive oil, walnut oil, or beeswax to shoes, than buff with a chamois cloth.

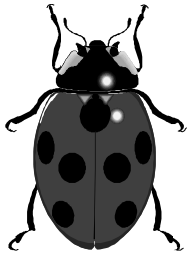
Leather: Rub equal parts of white vinegar and linseed oil into leather; buff with soft cloth.

Patent Leather: Rub with a dab of petroleum jelly.

Suede: Rub with an art-gum eraser and buff lightly with sandpaper, and emery board, or a wire suede brush.

***

YARD & GARDEN



Pesticides

Problem: Pesticides are chemicals that are intended to kill unwanted animals, plants, or microorganisms. These products may also be toxic to humans and pets. Pesticides include commonly recognized insecticides and herbicides, and products such as wood preservatives, flea rinses, insect repellents, and marine anti-fouling paints. It is extremely important to read the pesticide label before using the product. Follow the directions exactly. Always keep pesticides out of reach of children and pets and away from heat and the elements.

Pesticide Labeling

Federal law requires that most hazardous household products, and in particular pesticides, include specific information about the products on their labels. Product labels tend to advertise their virtues rather than emphasize product safety. The consumer must know what to look for and how to read the fine print of a label to ensure they use a product safely -- for themselves and the environment. Pesticide labels must legally include the following pieces of information: pests registered against, child hazard warnings, net contents, directions for use, warning statements, misuse statement, and registration numbers.

Every pesticide must be registered with the U.S. Environmental Protection Agency (EPA). Labels must contain the registration number (EPA Re. No. XX) and an establishment number (code for manufacturer((EPA Est. No. XX). If either one of these numbers is not listed on the label do not buy the product. It means the product is not registered with the EPA or is mislabeled.

The relative toxicity (lethal dose) of a pesticide is defined by the **signal word** on the label. The signal word describes toxicity of only active ingredients. “inert” ingredients may also be hazardous, and may include petroleum distillates that cause health problems as well. The signal words and precautionary statements provide useful information on how to use the product and what to do if the product is ingested. The following is a list of signal words and their toxicity ratings:

DANGER/POISON Highly toxic: the most hazardous rating. Consuming a few drops to 1 teaspoon may kill an average adult.
WARNING Moderately toxic: consuming 1 teaspoon to 1 ounce may kill an average adult.
CAUTION Slightly toxic: consuming over 1 ounce may kill an average adult.

Alternatives:

*** Keep home and yard clear of food sources and decaying plants.
*** Take rubbish out regularly and caulk access points to your house.
*** Keep plants healthy by fertilizing, cultivating, and watering them.
*** Rotate the garden plot.
*** Pick off insects by hand.

*** Plant marigolds to ward off insects.
*** Use mechanical traps or sticky paper.
** Less toxic products to consider:
Dehydrating dusts (e.g., diatomaceous earth and silica gel)
insecticidal soaps
biological pesticides (e.g., Bacillus thuringiensis)
** For severe infestations, use less-toxic insecticides (e.g., pyrethrin) or “insect growth regulators.”
* Buy the lowest toxicity product available: gauge toxicity of a pesticide by the signal words on the label (caution being the least toxic; danger being the most).

Ants:

Inside the house:

*** Pour a line of cream or tartar; red chili powder, paprika, or dried peppermint at point of entry.
** Caulk openings into the house; petroleum jelly in the cracks or duct tape can be a temporary fix. Apply diatomaceous earth or silica gel into cracks, and apply at entry points that can’t be caulked. Apply boric acid dust into cracks where ants emerge. (Boric acid is a poison, so be sure it is inaccessible to pets and children!)

Outside the house:

*** Ants may be beneficial in the garden. They attack termites and eat flea eggs, so limit your control effort to problem areas. Ants will protect aphids from their natural enemies and carry aphids to other plants. To prevent ants from climbing to where aphids are, apply a sticky adhesive material (like Tanglefoot™) to a band of nursery tape, tin foil, or plastic wrap wrapped around the base of the plants (base should be 12" wide for trees; as wide as possible for bushes). Apply tape several inches above the ground.
*** Plant onions and beans close together to repel ants.
*** If a nest is a problem because it is near your house, destroy it with boiling water, insecticidal soap, a pyrethrin solution, or diatomaceous earth.
** Place ant baits in problem areas. Look for boric acid baits or hydramethylnon baits, which are less toxic than arsenic.

Caterpillars:

*** Hand pick.
** Apply products containing Bacillus thuringiensis, an effective and popular product. This must be applied to the leaves when the caterpillars are eating. It is safe to mammals and other insects, but will kill caterpillars. Be sure to target only the pest-infested plants.

Mosquitos:

*** Screen windows and doors. Remove all standing water near your house; this is

critical!

*** Stock ornamental ponds with mosquito fish. If your pond is attracting mosquitos, siphon out water.

*** Use Bacillus thuringiensis israelensis (a non-toxic biological control) in ponds. It kills the larvae in the water.

Repellents:

*** Use citronella oil insect repellents.

*** Don't wear strong smelling products like lotions, deodorants, hair spray, or suntan oils; they attract mosquitos. Apply the more toxic mosquito repellents to clothing, not to skin.

*** Repellents such as ZZZ Away™ and Naturally Free™ make good natural repellents.

Note: For more information on mosquito abatement call the Hawai'i Department of Health, Vector Control at 831-6767.

Moths:

Mothballs contain hazardous substances; please consider using the following alternatives in your home:

*** Destroy all stages of clothes moths by cleaning garments before storing. Store clothes in well-sealed containers.

*** Hang clothes in the sunlight and beat them to dislodge moth larvae and eggs before storing. Vacuum closets thoroughly.

*** Put cedar wood in your closet to repel moths.

Aphids:

*** Crush dense colonies at plant tips with fingers.

*** Spray off with a strong stream of water (be careful not to harm or break plants).

*** Mix: 1 tablespoon dish soap
1 cup vegetable oil
Add 1 teaspoon of this mix to 1 cup water and spray on aphids. Try the solution on a few leaves first. Oil may harm vegetable plants in the cabbage family.

*** Use a slow-release fertilizer like fish emulsion. Don't fertilize plants with high nitrogen fertilizer in early spring. Aphids love the fast, new growth.

** Spray with insecticidal soap.

Snails and Slugs:

*** Snails and slugs breed in shady, cool, moist spots in the garden: agapanthus, lilies, ice plant, wood pile, or empty flower pots provide good homes for slugs and snails. Change these environments to discourage breeding.

*** Hand pick. It is the safest and surest method.

** Use traps or barriers (see below). Snails are active at night, so check traps 2 hours after sunset or in early morning with a flashlight. Kill snail by smashing or drowning in soapy water and then bury. If infestation is severe, judicious use of metaldehyde

snail bait may be needed. Place bait inside flattened tin cans in the garden where snail damage is worst. The bait can attract and poison dogs, and it is also toxic to birds. Place bait carefully!

Traps: Prop up overturned clay pots, boards, or black plastic sheeting. Sink shallow plants, filled with stale beer, in the ground with the rim even with the ground level. Remove dead snails and slugs regularly. Yeast in the beer attracts them.

Barriers: Copper stripping (2" or more) mounted around raised planting beds keeps snails and slugs out of the protected area since they will not cross the copper. Be sure to capture snails and slugs already in the area. Bend sharp edges under to protect children and pets.

Termites:

*** Prevention: Subterranean termites need water, so keep water away from the perimeter of the house. Keep area under and around the house free of decaying wood. Wood should not be in direct contact with soil. Build with borate-treated wood. Watch for and destroy termite-built earthen tubes (pencil width) in basement and foundation area. These are a sure sign you have subterranean termites.

*** Treatment: Hire a professional pest-control company who uses some of the following less toxic techniques: sand barrier around the house, heat or cold treatment for drywood termites, silica-gel (dust) applied in attic, and less toxic pesticides like pyrethroids and methoprene.

Roaches:

*** Close openings into the house, such as gaps around pipes and electrical work, door molding, cracks in walls, with caulking or screening weather-stripping.

*** Seal all food containers.

*** Clear dishes nightly or leave them in soapy water.

*** Do not leave pet food out overnight.

*** Place bay leaves in the pantry, cupboards, and on shelves to repel cockroaches.

*** Use non-toxic roach traps to monitor the change in population.

** Apply boric acid dust into cracks and places where roaches hide, like under the refrigerator. Apply only in out-of the-way places where pets and children can't touch it; it is a poison! Roaches will avoid piles of boric acid so use a fine dusting.

** Apply a fine dusting of diatomaceous earth or silica gel to each walkway. These dusts dehydrate and repel roaches.

Disposal: Use up all pesticides according to label instructions. Empty plastic and glass pesticide containers should be triple-rinsed before being thrown away. The rinse water can be a pesticide. The empty container should then be wrapped in newspaper and discarded with household trash. Unusable pesticide products should be taken to a household hazardous waste collection for disposal. See **pages 5-6** for more information.

Pet Care

Problem: It is important to note that fleas may never be completely eradicated from your pets, your home, or your yard as long as you have pets. Avoid using conventional flea collars because they expose your pets to constant low level of toxicities. If you must use them, limit use to periods of serious infestation. If you use pesticide products, be sure to check wind conditions before you apply a spray product on your pet to avoid exposing others to the product.

Carefully read and understand the whole pesticide label before you use the product. The key is to control infestations through a combination of the following alternatives. Recommendations listed below may change according to the age and health of your pet. Consult with your veterinarian before trying any of these suggestions or to get additional ideas for non-toxic controls.

Alternatives:

*** List of some natural pet product companies:

Halo	Bet's Pest
Natural Animal	Thursday's Plantation
Safer	

In the House:

*** Vacuum house frequently (every day at the beginning of your flea program, especially carpet edges at the wall and pet bedding). Remove, seal, and dispose of the vacuum bag outside the home and away from pets. Leave vacuum bag in the sun for a day to kill fleas (will keep fleas from escaping into your yard from the trash).

*** Clean pet bedding regularly.

*** Steam clean the carpet; this kills adult fleas, larvae, and some eggs. The heat will trigger some of the eggs to hatch, so be prepared to vacuum soon after steam cleaning.

*** Apply a dusting of silica gel to pet bedding, under furniture, and around house foundation. This dehydrates the adults.

** Use Methoprene, an "Insect Growth Regulator." IGRs interrupt the reproductive cycle of fleas. It prevents the flea larvae from maturing and exposes your pets to much lower toxicity levels than conventional pesticides. Avoid buying IGRs mixed with toxic insecticides. Pyrethrin and methoprene is a less-toxic combination.

** Pyrethrin-based flea products are reported to be the least toxic of the most commonly used flea control products. Be aware, however, that some animals are harmed by even these compounds. Common forms found, in order from least toxic to more toxic are, pyrethrums, pyrethrin along or with inert materials, pyrethrin with piperonal butoxide and inert materials.

On Your Pet:

*** Use a flea comb specially designed to remove fleas from pets (works well for cats who hate baths); drop fleas into soapy water.

*** Ask your veterinarian about the new anti-flea pill you can give to your dog or cat.
*** Wash pet with a mixture of a mild soap and water.
*** While not proven, many pet owners find it helpful to feed pets vitamin B supplements. Or sprinkle pet's food with brewer's yeast (nutritional yeast). Or mix raw garlic into pet's food. This may make the pet less attractive to fleas.
*** Experiment with natural flea repellents such as eucalyptus, citronella, cedar-wood, pennyroyal, and black walnut leaves. Herbal repellents are not registered as pesticides and some pet owners swear by them. Find them in "essential oil" flea dips or herbal flea collars. Herbal repellents are most useful once the flea population is under control.
** Wash pet with an insecticidal flea soap, a pyrethrin/methoprene flea shampoo, or a citrus oil shampoo or dip containing limonene or linalool. Begin regular baths when pets are young so they get used to it.
** Use pyrethrin powders on pets. Avoid getting powder into pet's eyes, nostrils, or mouth. When cats clean themselves, they will ingest some, so don't over apply, and powder only when necessary.

Disposal: Use up all pesticides according to label instructions. Empty plastic and glass pesticide containers should be triple-rinsed before being thrown away. The rinse water can be used as a pesticide. The empty container should then be wrapped in a newspaper and discarded with household trash. If you have leftover pesticides or want to use someone else's leftovers, contact HIMEX (see page 5). See **page 6** for more information about household hazardous waste collections for unusable pesticide products.

Swimming Pools

Problem: It is important to control the growth of algae and bacteria in pools that might cause odors or infections in swimmers. Pool chemicals are necessary to keep pools sanitary for swimming. These chemicals are essentially pesticides, and safe use of these products according to label instruction is very important. Avoid copper-based algicide. Chlorine is usually adequate.

Alternatives:

*** Consider a chlorine generator for your pool. The generator allows you to use and store salt (inexpensive, non-toxic) instead of toxic chlorine pool chemicals.
*** Use diatomaceous earth filter. This allows you to avoid the use of any kind of chemical.

Disposal: Never let your pool water drain to a storm drain. The chlorine and other chemicals will go directly into streams and the ocean and possibly kill aquatic life. Interview pool cleaner professionals before you hire the company to make sure they follow proper disposal of water from your pool. Use up chemicals according to directions; put empty containers in garbage. If your home is connected to a municipal sewer system, flush small amounts of chemicals down an inside drain with liberal amounts of water. If you have pool chemicals that you can no longer use, contact HIMEX (see **page 5**). See **pages 5-6** for household hazardous waste collections.