

# MANAGING HAZARDOUS HOUSEHOLD PRODUCTS

Some commercial products commonly used in and around your home have the potential to harm your health and the environment. This chapter will help you identify potential product hazards and minimize your risks. It covers safe management of products from purchase to disposal. The chapter is divided into three parts:

1. *Product Selection, Purchase, and Use.* This section discusses the following
  - product selection criteria
  - how much of a product to purchase
  - safety precautions for use
2. *Safe Storage.* Topics covered in this section include the following:
  - child safety considerations
  - containers and spill protection
  - proper ventilation
3. *Product Disposal.* This part covers what to do with empty containers and remaining materials.

### *Why should you be concerned?*

Some products used around the home contain ingredients that can pose threats to your health or the environment if not handled properly (Figure

5.1). Vapors from paint thinner and other solvents can be hazardous to breathe. Products such as motor oil or pesticides—if disposed of on the ground—may contribute to the pollution of your drinking water or a nearby stream.

For each chemical or product, there are many questions to consider. Which product best meets your needs? Are there safer alternatives? Is it dangerous to children? What is the best way to store it? How can you use it safely? How do you dispose of remaining materials?

This chapter will help you understand and make choices that will reduce risks to your family and your watershed. Remember: you are responsible for the safe use, reuse, or disposal of any products in and around your home. It is up to you to make a good decision.

### *What does the word hazardous mean?*

A thing or situation is hazardous if it has the potential to cause harm. For example, a child's rollerskate left on a stair is hazardous.

Household products are hazardous if they include ingredients that pose dangers to human health or the environment (see sidebar at left on



**Figure 5.1** Some household products contain ingredients that if not handled properly can threaten your health or the environment.

page 48) and must be properly managed. Not every product in a category of products is equally hazardous—for example, some paints and strippers are less hazardous than others. To be safe, learn how to properly use, store, and dispose of products.

It is also important to know the difference between hazards to human health and hazards to the environment. These are explained below.

### Hazards to human health

Health problems can be caused by chemicals in some of the products in your home *if product warnings and directions are not heeded*. Health effects can range from minor problems, such as irritated skin or watery eyes, to more serious problems, such as burns, poisoning, or even cancer.

You can be exposed to a product ingredient by (1) ingestion, including accidental ingestion by drinking, eating, or smoking when a substance is on your hands; (2) inhalation, breathing dust or fumes; or (3) absorption through contact with skin or eyes (Figure 5.2). The potential for harm from exposure to a hazardous product depends on:

- type of chemicals in the product
- how much of the chemical you are exposed to
- how frequently you are exposed
- your size, weight, and health

If exposure occurs, some harmful effects appear immediately. Typical symptoms are nausea, skin irritation, burning eyes, dizziness, and headaches. Other effects, such as kidney or lung damage or cancer, take a longer time to develop. A person who uses hazardous products frequently—without adequate safety precautions or proper ventilation—may experience these serious health effects.

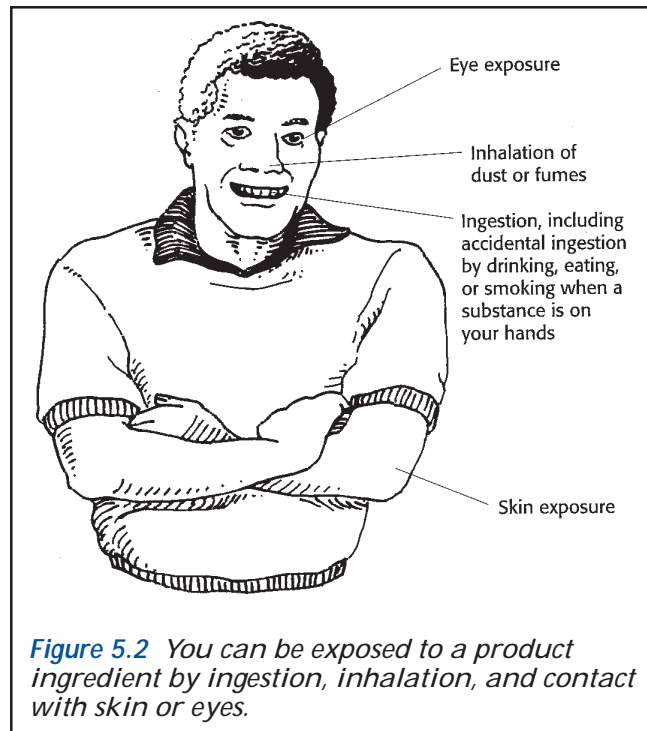
To avoid accidental exposure . . .

- Follow safety precautions on the product label.

### Household products that could be hazardous when improperly managed

- **Building supplies**—sealants, some adhesives, wood preservatives (especially those containing pesticides)
- **Vehicle-related products**—antifreeze, oil, cleaning solvents, lead-acid batteries, gasoline, lubricants
- **Home maintenance products**—oil-based paints, mineral spirits, paint thinner, products that can remove greases or adhesives, paint stripper, drain cleaners and septic tank additives
- **Hobby and recreational supplies**—photo developer chemicals, marine paints, electronic equipment cleaners, swimming pool chemicals
- **Pesticides**—herbicides, insecticides, rodent poison, yard insect foggers, pesticide strips, fungicides, aquacides

\* See the chart on page 61 for a more detailed listing of products.



**Figure 5.2** You can be exposed to a product ingredient by ingestion, inhalation, and contact with skin or eyes.

- Always work in a well-ventilated area, especially if the product contains a solvent. (Solvent-containing products have the words “Flammable,” “Combustible,” or “Contains Petroleum Distillates” on the label.)
- Wear protective clothing such as rubber gloves and goggles as stated on the product label .
- Read and follow all label precautions to ensure your safety while using the product.

### Hazards to the environment

How we manage products used on or near our property can affect the environment. Ingredients in some household products can be hazardous to plants and animals in natural environments. Pesticides or motor oil washing into a stream, for example, can harm fish. Human health can also be threatened if our food, water, or air becomes contaminated through improper use or disposal of a household product. Other chapters in this guide detail management practices for specific categories of contaminants; see the table of contents at the beginning of this book.

Once released, some chemicals can be assimilated into the environment without harmful effects. Others persist and have many different effects. Some chemicals can be taken into living systems and accumulate as they are passed from one organism to another (bioaccumulation). If enough chemical builds up, it could harm an organism’s ability to reproduce, damage its nervous system, or impair the function of its organs. Bioaccumulation occurs in and between plants and animals.

Most chemicals known to cause environmental problems are regulated by federal law. But because

it is difficult to keep track of the small quantities used by homeowners, everyone has a part in minimizing the impact of use and disposal. Some cleanup or disposal practices may not seem like they could lead to trouble, but repeated over long periods of time, can accumulate. Thus, even old habits should be examined for potential risks.

## To protect the environment . . .

- **Avoid:**
  - dumping oils, paints, solvents, heavy metals (mercury, lead, chromium), pesticides, or other household chemicals on the ground, roads, or down storm or sanitary sewers, or septic systems
  - dumping products in a wetland, stream, or any other body of water
  - washing chemicals off the driveway with a hose
  - pouring pesticides, antifreeze, or other chemicals into a drain that leads to a septic tank
  - spraying pesticides on a windy day
  - burning empty containers in a barrel or outdoor fire
  - mixing products together unless the manufacturer's label allows it
- **Do:**
  - Use up a product according to label directions.
  - Share any unused materials with a neighbor or local organization like Habitat for Humanity.
  - Find out if a product can be recycled and where to recycle it in your community.
  - Find out if your community has a hazardous waste collection program. A list of Kansas counties operating a Household Hazardous Waste program can be found on pages 58–61 of this chapter. Use the community program to dispose of any leftover products listed in the chart on pages 61–62 at the end of this chapter.

## PART 1—Product Selection, Purchase, and Use

Your choice of products is the first step. By carefully selecting the product for the job needed, you help control the degree of “hazard” you bring to your home or property. At the end of Part 1, fill out the assessment table to evaluate your risks regarding product choice and use. The information below will help you answer the questions in the assessment.

### *How can you tell which products are hazardous?*

It is often difficult to find out what is hazardous and to whom and how something is a hazard. It pays to learn as much as you can about a household product and its potential hazards before purchasing the

product. Labels contain important information and often tell if a product could be hazardous. Health problems can be minimized by carefully following directions for use and safety.

Remember, absence of a warning on a product label does not necessarily mean that the product is safe. Old products or products not intended for household use may not provide consumer information on the label. When using any chemical product, use it with care and caution. If in doubt, call the manufacturer (phone number may be on label) or ask the retailer for the manufacturer's Material Safety Data Sheet (MSDS), which provides more information about product hazards.

In addition to product labels, up-to-date publications and advice from experts are also good sources of information. Ask questions, and look for helpful ideas from health agency employees, K-State Research and Extension staff, articles, and books. See pages 61–62 at the end of this chapter for a listing of products likely to include ingredients of concern.

### *How can product labels help you?*

Information on the product label can help you decide whether the product is right for the job and if it can be used safely in your situation. Before you purchase or use a product, take the time to read the label, even though the print is often tiny (Figure 5.3). Labels provide details about how to safely use, store, and dispose of a product. First-aid instructions are provided when needed.

Household consumer products that are hazardous or contain hazardous substances are required to have human safety information, or warning labels. Pesticide labels are also required to provide detailed information on use, storage, and disposal. As you read this section, take a look at the labels on some of the products in your home.

The *signal words*—CAUTION, WARNING, and DANGER—draw your attention to important human safety information. However, they can mean different things, depending on the product. Labels on pesticides provide information about the poison level of the pesticide. On household products, they describe immediate health effects resulting from improper use. The signal word DANGER is required on any product that is extremely flammable, corrosive, or toxic. Products labeled DANGER, FLAMMABLE, POISON, VAPOR HARMFUL, or FATAL IF SWALLOWED may have ingredients that could cause environmental damage as well as health problems if used, stored, or disposed of improperly.

Beware of terms on labels that are vague and possibly misleading. The Federal Trade Commission has provided manufacturers with guidelines about vague environmental terms such as “ozone safe” or “environmentally friendly,” but use of such terms is not regulated on any products except pesticides.



**Figure 5.3** Product labels provide details about how to safely use, store, and dispose of a product.

If you need more information about a product than is provided by the label, ask the dealer for the manufacturer’s MSDS, or consult a Poison Control Center (see sidebar on page 51). Most manufacturers provide a phone number on their product label and are willing to answer questions by phone.

### Can an alternative product do the job?

When choosing from among several brands of the same kind of product—for example, paint strippers or degreasers—read the labels to learn which product will meet your needs most safely. If you do not check first, you might buy a hazardous product such as a solvent-based cleaner when a detergent-based cleaner is available or a common alternative like kitchen cleanser will work. Manufacturers are aware of consumer safety issues, and many offer a range of products. Some alternatives are suggested in the sidebar on this page. For more help in deciding which products to buy, check the resources listed on page 56 at the end of this chapter.

In an effort to reduce risk from hazardous chemicals, many organizations have distributed information about making mix-at-home cleaners using readily available ingredients. Be advised, however, that your homemade product may not be a safer alternative. If you choose to make your own household products, be sure to consider these precautions:

- Use only one ingredient at a time. Never mix ingredients or products. Be sure to rinse the surface between products used on one place.
- Always test any cleaner on a small area before applying it to the whole surface.
- Do not use food products for cleaning (such as vegetable oil or milk). Food products may spoil or support growth of bacteria or mold on the surface being cleaned.
- Use clean containers when storing homemade products, and clearly label the container with the contents and date. Never store homemade products in old containers from commercial products.

### LOOKING FOR AN ALTERNATIVE?

**Adhesives**—Use a water-based or latex adhesive if appropriate.

**Batteries**—Choose rechargeable batteries (removable, so they can be recycled) and mercury-free batteries when possible. Remember, standard batteries CAN be recharged as much as 10 to 15 times before they are recycled.

**Cleaners**—Choose soap- or detergent-based cleaners when possible. Avoid non-water-soluble and corrosive cleaners when others offer an effective substitute.

**Household pesticides**—Look for ways to reduce your need for these products through appropriate cleaning and maintenance habits.

**Floor and wood-finish strippers**—Use a detergent or water-based stripper.

**Paint stripper**—For small jobs use sandpaper or a scraper. For larger jobs try this old-time method being used on solid wood pieces by an antique store in Downs, Kansas. Mix one pound of baking soda with one half cup of flour; add enough water to obtain the consistency of pancake batter. Paint the mixture thickly onto the old painted surface and cover with a damp flannel cloth. Keep the cloth moist by spraying with water. In an hour or so the old paint should be very soft; scrape off the loosened finish. Repeat as necessary for multiple paint layers or deep grooves.

**Wood preservative**—Use a water-sealing coating.

*Several of the above suggestions were provided by the Minnesota Pollution Control Agency.*

### Do you buy only what you need?

If you buy more than you need, household products will accumulate and create storage problems. If unused for long periods, product containers may become damaged and leak, and products may change chemically and not be effective when you finally try to use them. Some products such as pesticides may have been restricted or banned since they were purchased. If that occurs, safe and legal disposal becomes much more difficult. Avoid these problems by purchasing and using only what you need or plan to share the product with a neighbor or friend.

### Assessment 1—Product selection, purchase, and use

Risk categories and recommendations found in the assessment table and others that follow apply to hazardous products in general. For some products, there will be management options that are not covered. If you are not sure what to do, ask for advice from the resources listed at the end of this chapter. Do not take chances. Find out what is safest.

Use the table to rate your risks related to the selection, purchase, and use of household products. (Parts 2 and 3 in this chapter cover storage and disposal.) For each question, indicate your risk level

## ASSESSMENT 1—Product Selection, Purchase, and Use

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
<b>Product selection</b>	I always read labels; understand signal words and the health or environmental hazards labels describe. I choose the least hazardous product needed for the job.	I don't read labels or don't understand what they mean, but I use a common sense approach to safety.	I rarely read labels. I purchase products without considering what the product is made of, how it will affect people, or how it will be used.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Quantities purchased</b>	I buy only what is needed for a specific job. I use up most of the product within a few months of purchase or share the excess with someone else who will use it repeatedly.	I buy excess product, but provide safe and accessible storage.	I buy more than is needed, then purchase additional product without checking on current supplies.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Safety precautions</b>	I follow label instructions and take recommended precautions against exposure (such as providing good ventilation and wearing safety goggles and gloves). I never mix products.	I occasionally read label instructions. I take some precautions. I occasionally mix products for specific cleaning tasks, but I always check safety precautions first.	I rarely follow label instructions and take no precautions—even when recommended. If one product doesn't work, I add in another without checking safety precautions.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

in the right-hand column. Some choices may not be exactly like your situation, so choose the response that best fits. Refer to Part 1 above if you need more information to complete this table.

### WHEN YOU STORE HOUSEHOLD PRODUCTS, DO YOU:

- Keep them out of the reach of children and pets, preferably in a locked, secure area?
- Check the label for “Do not freeze” and store accordingly?
- Store them in their original containers?
- Clearly label and date any alternative containers?
- Keep containers tightly sealed and dry?
- Store products at least 150 feet from a well, stream, or waterway?
- Keep products in a well-ventilated area and away from sources of ignition?
- Store batteries and flammable chemicals in an area shaded from direct sunlight?

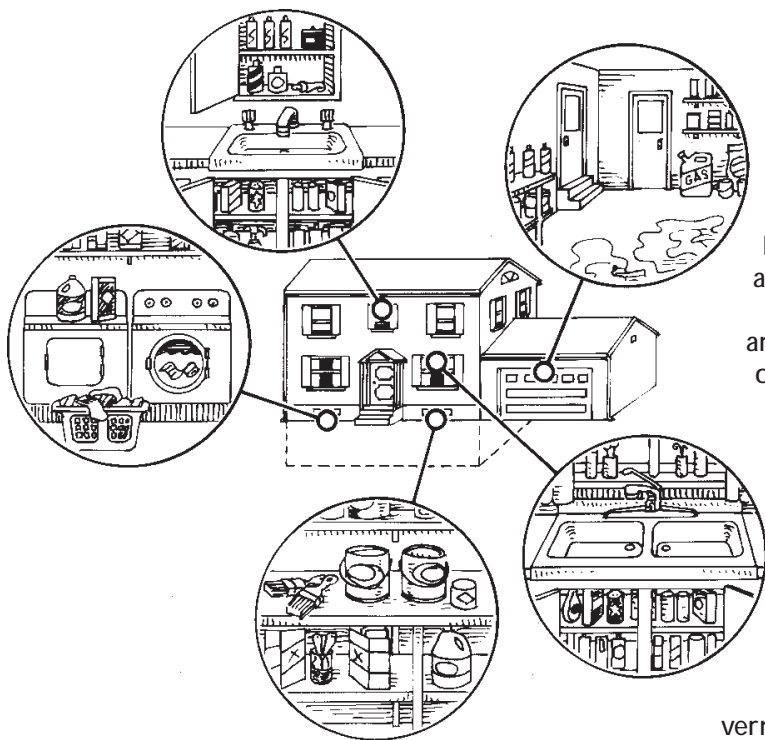
### Responding to risks

Your goal is to lower your health risks and reduce potential harm to the environment. Turn to the Action Checklist on page 57 to record the medium- and high-risk practices you identified. Use the recommendations above to help you plan actions to reduce your risks.

### IN CASE OF EMERGENCY

When you are using a cleaning product or a pesticide, do not rely only on the label for information on health emergencies or environmental dangers. The information may be incomplete or incorrect. Poison Control Centers (whose resources feature a national computer data network) can provide emergency health information about a product. The Kansas Poison control Center phone number is: 1-800-332-6633

Keep the number close to your phone. For information about spills of hazardous products, contact the Kansas Department of Health and Environment at (785) 296-1600, or the National Response Center at (800) 424-8802.



**Figure 5.4** Hazardous products may be stored throughout a household.

## PART 2—Safe Storage and Use

Leftover or used chemicals such as strippers, paint, waste oil, used antifreeze, and solvents may need to be stored until their next use or disposal (Figure 5.4). How you store household products can determine how much risk may be present. Use the information below to help you fill out the assessment table at the end of this section.

### *Are your storage locations and containers really safe?*

When storing household products, primary concerns are child safety (Figure 5.5), indoor air quality, and prevention of damage to household equipment or the environment. If you can smell a household product while it is in storage, you are being exposed through your lungs. The product lid may be loose or ventilation may be inadequate to protect your health.

Remember that children must be protected by storing toxic items inaccessibly or under lock and key. Pets and wildlife can be poisoned when chemicals such as antifreeze are left out in open containers. Petroleum products which are on an animal's hair will be ingested while grooming, resulting in poisoning.

Be sure to separate corrosives like bleach, acids, or lye from each other and other hazardous products to prevent dangerous chemical reactions. Reactions can occur when corrosives leak from their containers and drip or flow to other products. Corrosive materials are often stored where equipment and appliances are located; be aware that they can corrode air-conditioning and heating systems, hot water heaters, and other equipment or appliances. Rou-

tinely check areas where you store household products (under the kitchen sink, in the basement or garage) to make sure that containers are closed tightly and not leaking, and that the sides of containers are not bulging. To contain possible leaks, containers of corrosive liquids can be “nested” inside a larger plastic bucket. Remember that vapors and fumes can also be corrosive, so be sure to reseal containers.

Spills can occur anywhere you handle hazardous liquids. Areas where potentially dangerous spills could occur is a good place to put up the local and state spill response numbers and these reminders:

- ALWAYS read the label and follow directions
- think about how you would handle a spill should it occur
- avoid spills by using care
- place the receiving container in a larger pan or on an absorbent pad which can be discarded

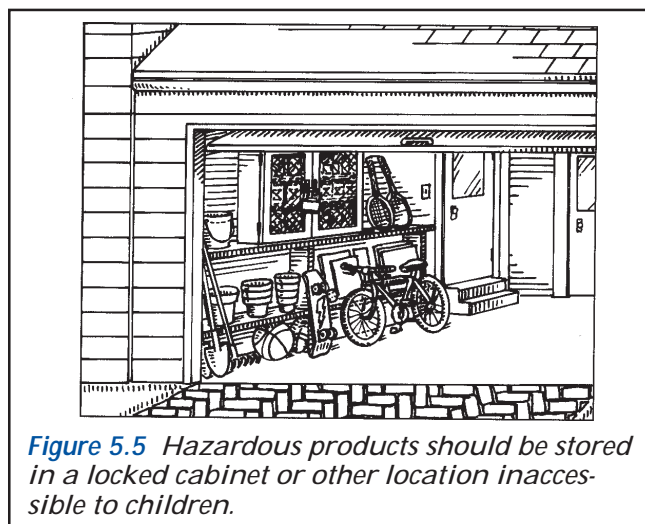
Should a chemical spill occur, use kitty litter, vermiculite, newspaper, rags, or dirt to contain and absorb the liquid. Place the material in a plastic bag or sealable can and put it in the trash. NEVER wash it down the drain or into the gutter. Chapter 7 addresses pesticide and fertilizer spills.

### *Assessment 2—Safe storage and use*

Use the table on page 53 to rate your risks related to product storage. For each question, indicate your risk level in the right-hand column. Some choices may not be exactly like your situation, so choose the response that best fits. Refer to Part 2 above if you need more information to complete this table. See Part 1 for choices about product selection and Part 3 for choices about disposal.

### *Responding to risks*

Your goal is to lower your health risks and reduce potential harm to the environment. Turn to the Action Check list on page 57 to record the



**Figure 5.5** Hazardous products should be stored in a locked cabinet or other location inaccessible to children.

## ASSESSMENT 2—Safe Storage and Use

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
<b>Child Safety</b>	I store hazardous products in a locked cabinet or other location inaccessible to children.	I keep products out of the direct reach of children (on a high shelf) but still accessible.	My products are easily accessible to children (in an unlocked cabinet on the lower shelf).	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Containers, storage location, and spill protection</b>	I store leftovers in their original containers, properly sealed. Products are stored by type and “nested” in a bucket to catch leaks. My home environment is protected against leaks or spills.	I store original containers in a disorganized way. I usually don’t provide protection against leaks or spills.	I transfer leftovers to other containers such as used milk jugs or glass jars. I store leftovers without caps or lids. I don’t provide protection against leaks or spills.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Ventilation</b>	I store volatile products (like solvents and petroleum-based fluids) in places with good ventilation.	I don’t pay attention to storage location, but each container is in good shape and tightly sealed.	I store products in areas with poor ventilation such as basements, closets, or crawl spaces. Containers are damaged or left open.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

medium- and high-risk practices you identified. Use the recommendations above to help you plan actions to reduce your risks.

### PART 3—Product Disposal

Unless a product is used up, you will have to dispose of it. For some products that are especially hazardous—like pesticides—even the product container will have to be disposed of properly. Part 3 provides tips for disposal of certain hazardous product categories, but readers are referred to the disposal guides listed on page 56 at the end of this chapter for detailed management recommendations.

#### *What is the best way to dispose of leftover hazardous products?*

Disposal should be your last option because it is wasteful and, if not done properly, can be unsafe for you and the environment. You can avoid the disposal dilemma by buying and using only what you need, using up your leftovers, or recycling. Remember that latex paint and many pesticides become useless if exposed to cold temperatures. By giving leftover products to a neighbor or local organization who can use them quickly, you can turn a potential waste problem into a cost-saving opportunity.

Some communities sponsor swap programs to encourage sharing, and options for recycling are increasing. Used motor oil and antifreeze, for example, are accepted in many communities and

automobile repair shops for recycling (Figure 5.6). Some pesticide containers may be returned to where they were purchased for safe disposal.

Some cities and communities sponsor either occasional or permanent household hazardous waste collection programs. A list of Kansas counties which operate Household Hazardous Waste programs can be found at the end of this chapter. Because only certain hazardous products may be accepted, contact the program to learn exactly what materials are accepted. If your community does not sponsor such a program, contact local solid waste collection companies or county officials for disposal advice.

Household quantities of some products can be safely sent to a landfill. For example, leftover latex paint can be hardened by air exposure or absorbed by kitty litter. When dry, the can with its hardened contents can be discarded in household garbage.

#### *Paint and pesticides merit special attention*

We all buy too much paint. Municipalities that collect leftover hazardous household products report that paints make up about half of the material that people bring and thus are a costly (but avoidable) disposal expense. The best practice is to avoid leftovers. Calculate how much paint you will need before you buy. Salespeople at paint stores can help you with these calculations. Plan a use for extra paint, such as closet interiors or double coat a wall which is subject to damage.

Most leftover paint can be safely managed by sharing it with neighbors or organizations. Always remember that latex paints become useless if stored where they can freeze. Leftover lead-based paints or exterior paints containing mercury or pesticides should be treated as hazardous material.

We don't pay enough attention to how we manage pesticides. A 1992 U.S. Environmental Protection Agency study of pesticide use in homes and gardens provided disturbing information about how pesticides are used, stored, and discarded. Household practices showed that people fail to recognize the danger that pesticides can pose to child safety, human and animal health, or the environment when managed improperly.

Before you choose a pesticide, be sure that you have exhausted other options for managing the pest, weed, or fungus problem (see suggestions in the sidebar in the next column). If you do need to use a pesticide, read label information carefully before purchasing a product. Buy specifically to control the target pest, and only what you need.

Pay close attention to use and disposal recommendations described on pesticide labels. Before disposal, use up the product if possible. Triple rinse empty containers of liquid pesticides. Use the rinse water as part of your yard and garden management. Chapter 7 provides additional advice for managing yard and garden pesticides.

### *Is dumping or burning a safe alternative?*

It is never appropriate to dump or burn hazardous products on your property, particularly near wells or water sources. Nor should products be poured down storm sewers. If you are on a commu-



*Figure 5.6 Used motor oil and antifreeze are accepted in many communities for recycling.*

### **REDUCE YOUR NEED FOR PESTICIDES IN THE HOME**

- Maintain regular cleaning habits, especially in the kitchen area.
- Caulk cracks and other openings to the outside.
- Keep screens repaired.
- Keep houseplants healthy by providing appropriate care. County Extension offices have plant care information available.

nity sewer, most water-soluble cleaning products may be safely disposed down the drain if you flush the drain with plenty of water. If in doubt, call the wastewater treatment plant and ask.

Septic system owners need to be especially careful. With septic systems, the rule of thumb is moderation. Don't dump large amounts of anything into the septic system. Septic systems are not designed to treat chemicals. If the product is specifically designed to be used in the home with water, then moderate use should not harm the system. If in doubt, DON'T DO IT! The risk of damage to your septic system or water source is not worth the convenience.

Burning hazardous materials in a barrel or stove is never an alternative—and it is illegal in most Kansas communities. Burning may produce toxic gases, airborne particles, and hazardous ash.

### **Assessment 3—Product disposal**

General recommendations for disposal are provided in the table on page 55. Check the waste category in the left column and see if any of your disposal practices present risks to human health or the environment. (See the chart beginning on page 61—Hazardous Product Examples and Inventory—for specific products affected by these recommendations.)

### **Responding to risks**

Your goal is to lower your risks. Turn to the Action Checklist on page 57 to record the medium- and high-risk practices you identified. Use the recommendations above to help plan actions to reduce your risks.

## **ACTION CHECKLIST**

When you finish the assessments, go back over them to make sure you have recorded all medium and high risks in the checklist. For each risk you identified, write down improvements you plan to make. Use recommendations from this chapter and other resources (see "For More Information" on page 56). Pick a target date to keep you on schedule for making changes. You do not have to do everything at once, but try to eliminate the most serious risks as soon as you can. Often it helps to start with inexpensive actions first.

### ASSESSMENT 3—Product disposal

WASTE CATEGORY	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
<b>Household trash</b> (containing plastics or empty containers of hazardous materials)	I rinse empty yard and garden pesticide containers and include the rinse water in yard and garden management. I dispose of trash and empty product containers at a licensed landfill. I do not burn trash.	I dispose of ash from mixed trash, leftover pesticides and solvents on my property, but well away from my well or waterways. I burn empty hazardous materials containers.	I always dispose of ash from mixed trash, leftover pesticides and solvents near a well or waterway. I burn empty hazardous materials containers near people or animals.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Strong acids and bases</b> (found in hobby and recreation products, concentrated cleaners, and repair products)	I share any leftover products. I dilute strong acids and bases by pouring into water and putting them down a drain that connects to a sewage treatment facility.	I pour strong acids down the drain without first diluting them with water. I sometimes send leftover materials to a landfill (with proper protection for garbage haulers and employees).	I dump strong acids and cleaners directly into a storm sewer or waterway or on paved areas leading to a waterway.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Antifreeze waste motor oil</b>	I recycle antifreeze and waste oil by taking them to properly qualified dumping stations.	I pour my used antifreeze into a municipal treatment system.	I dump my used antifreeze and waste oil on the ground or down the storm sewer or near a well or waterway.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Batteries</b> (may contain mercury, cadmium, or lead)	I recharge and recycle batteries and take them to a hazardous waste disposal program.	I dispose of batteries in a licensed landfill.	I always dump batteries near or into a well or stream.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Bottled gas</b> (propane, butane)	I recycle empty bottled gas containers.	I store containers that may still contain some gas.	I put containers in my trash or leave them lying around.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Paints, cleaning and repair products containing hazardous (non-water soluble) solvents</b>	I share leftovers when possible. I take leftover products containing mercury pesticides, or hazardous solvents to a hazardous waste disposal program.	I dispose of leftover products in a licensed landfill.	I dump leftovers on the ground, near or into a well or stream. (Note: This is illegal!)	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
<b>Flourescent bulbs</b> (contain mercury)	I recycle burned-out flourescent bulbs or lamps.	I put my burned-out bulbs in the trash.	I leave my burned-out bulbs at a dump.	<input type="checkbox"/> Low <input type="checkbox"/> Medium
<b>Pesticides</b> (see Chapter 7, Yard and Garden Care Information)	I use preventative actions to control pests, indoors and outdoors. I explore options for non-chemical pest controls. I properly choose, store, handle, apply, and dispose of chemical pest controls.	When solving pest problems, I do not practice prevention or explore other non-chemical options.	I do not handle pesticides as directed on the label.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

## For More Information

### *Managing hazardous household products*

Check the list of counties conducting Household Hazardous Waste programs and contact your local agency, or the Kansas Department of Health and Environment, Bureau of Waste Management office at (785) 296-1600.

The Pollution Prevention Institute (PPI) at Kansas State University can be reached at 1 (800) 578-8898. PPI specialists can answer questions about the safe use and disposal of hazardous materials.

No matter where you live, there are government and agency personnel who can help.

### *Publications*

#### **Bulletins available from your county**

#### **K-State Research and Extension office:**

- *Automotive Products*. L-825 revised.
- *Paint and Solvents*. L-826 revised.
- *Using Household Products Wisely*. L-827 revised.
- *Using Pesticides Safely*. L-828 revised.
- *Household Product Disposal Guide*. MF-965 November 1991.

See Chapter 7, "Yard and Garden Care." A listing of K-State Research and Extension bulletins dealing specifically with fertilizers and pesticides can be found at the end of that chapter.

For detailed guidance on pesticide management, see *Guides to Pollution Prevention: Non-Agricultural Pesticide Users*, United States Environmental Protection Agency, 1993, document EPA/625/R-93/009. This 58-page guide, which includes nine worksheets, is available from the National Center for Environmental Publications and Information, P.O. Box 42419, Cincinnati, OH 45242-2419; fax (513) 489-8695.

### *Disposal*

The Water Environment Federation's (WEF) waste disposal guide provides disposal recommendations for many kinds of products. You may be able to get one from your local sewage treatment facility or contact WEF, Public Information Department, 601 Wythe Street, Alexandria, VA 22314-1994; phone (800) 666-0206 or (703) 684-2452.

Other guides are available from Environmental Hazards Management Institute (EHMI). For more information, write to 10 Newmarket Road, Durham, NH 03824; phone (800) 558-EHMI; fax (603) 868-1547; or e-mail EHMIORG@AOL.COM. Your local K-State Research and Extension office may have similar guides.

## *Kansas Home\*A\*Syst Helps Ensure Your Safety*

This *Kansas Home\*A\*Syst* handbook covers a variety of topics to help homeowners examine and address their most important environmental concerns. See the complete list of chapters in the table of contents at the beginning of this handbook. The end of each chapter lists resources and other useful information. For more information about topics covered in *Kansas Home\*A\*Syst*, or for information about laws and regulations specific to your area, contact your county or K-State Research and Extension office.

Contact the Kansas Farm\*A\*Syst/Home\*A\*Syst office at Biological and Agricultural Engineering, Seaton Hall, Manhattan, KS 66506-2917; phone: (785) 532-5418. Web page: [www.engg.ksu.edu/enggext/ppi/homeasyst](http://www.engg.ksu.edu/enggext/ppi/homeasyst); or the National Farm\*A\*Syst/Home\*A\*Syst Office at: B142 Steenbock Library, 550 Babcock Drive, Madison, WI 53706-1293; phone: (608) 262-0024; e-mail: <HOMEASYST@MACC.WISC.EDU>.

### *Kansas Home\*A\*Syst Team Members:*

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- G. Morgan Powell, Extension Natural Resource Engineer, Kansas State University
- Jim Rudeen, Environmental Scientist, Bureau of Waste Management, Kansas Department of Health and Environment

This chapter was based on original materials written by Elaine Andrews, Environmental Education Specialist, Environmental Resources Center, University of Wisconsin Cooperative Extension. Information on accidental exposure to hazardous products was adapted from a fact sheet produced by the Minnesota Pollution Control Agency.



<i>HHW Program</i>	<i>Contact</i>	<i>Address</i>	<i>Phone</i>	<i>Status</i>
Anderson County	Vernon Yoder	100 E. 4th Garnett, KS 66032	(785) 448-2327 Fax: -5621	Participates in the Lake Region.
Barber County	Roger Masenthin	Sunflower R C & D 705 E. Main Harper, KS 67058	(316) 896-7378 Fax: -7673	In the process of establishing a seven county program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt, and Sumner.
Barton County	Lew Lowery	1400 Main St. Rm 108 Great Bend, KS 67530	(316) 793-1894 Fax: -1807	Facility permitted since 9/91 Expanding to include Pawnee and Ellsworth counties SFY 1997
Big Lakes Region	J. Everett Mitchell Executive Director	200 Southwind Place Suite 202 Manhattan, KS 66502	(785) 776-4859 Fax: -1646	Regional program serving a ten county region: Clay, Dickinson, Geary, Marshall, Morris, Nemaha, Pottawatomie, Riley, Wabaunsee, Washington.
Butler County	Phil Hughey Solid Waste Coordinator	Butler County Public Works 1st Floor, Courthouse 205 W. Central El Dorado, KS 67042	(316) 322-4101 Fax: 321-1011	Facility permitted since 2/98
City of Olathe	Doug Cochran	P.O. Box 768 Olathe, KS 66051	(913) 397-5200 Fax: -5202	Facility permitted since 12/90
Clay County	Gailen Tyrell Noxious Weed Dir.	1330 21st Rd. Clay Center, KS 67432	(785) 632-2487 Fax: -2343	Facility permitted since 5/95. Regional Satellite Facility with Big Lakes Region.
Coffey County	Todd Bemis	1430 12 Lane SE Burlington, KS 66839	(316) 364-8409 Fax: same	Facility permitted since 5/98. Regional Satellite Facility with Big Lakes Region.
Chase County	Steve Griffin Noxious Weed Dir.	County Courthouse Cottonwood Falls, KS 66845	(316) 273-6423 Fax: -6617	Participates with Lyon County.
Chautauqua County	Don Attebury	South Central Solid Waste Authority P.O. Box 837 Arkansas City, KS 67005	(316) 441-0107 Fax: -0401	In the process of setting up a regional program with Cowley and Sumner.
Comanche County	Roger Masenthin	Sunflower RC&D 705 East Main Harper, KS 67058	(316) 896-7378 Fax: -7673	In the process of establishing a seven county regional program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt, and Sumner counties.
Cowley County	Don Attebury	South Central Solid Waste Authority P.O. Box 837	(316) 441-0107 Fax: -0401	In the process of setting up a regional program with Chautauqua and Sumner.
Dickinson County	Randy Barten Noxious Weed Dir.	P.O. Box 517 Abilene, KS 67410	(785) 263-4780 Fax: -0061	Participates in the Big Lakes Region.
Douglas County	Mollie Mangerich Bob Yoos	City of Lawrence P.O. Box 708 Lawrence, KS 66044	(785) 832-3026 Fax: -3056	Facility permitted since 1/94.
Edwards County	Ron Sitts	RR1, Box 18D Kinsley, KS 67547	(316) 659-2188 Fax: --3015	Participates in the Ford County Region.
Ellis County Region	Dale Wing	601 Main, Suite C Hays, KS 67601	(785) 628-9449 Fax: -9448	Facility permitted since 4/91. Regional facility serving seven counties: Ellis, Graham, Phillips, Rooks, Russell, Rush and Trego.
Ford County	Jeff Stauth HHW & Noxious Weed Director	100 Gunsmoke Dodge City, KS 67801	(316) 227-4525	Facility permitted since 8/92. Regional facility serving six counties: Ford, Edwards, Gray, Hodgeman, Meade, Ness
Fort Riley	Doug Schonberner Dir, of Env. & Safety Robert Tilly, Foreman	Ft Riley HHW Facility Bldg. 1946, 4th & L St. Fort Riley, KS 66442	(785) 239-8144 Fax: --0515	Facility permitted since 9/94 Military Base.
Franklin County	Bob Thompson HHW Director	2038 S. Main Ottawa, KS 66067	(785) 229-8470 Fax: -8478	Facility permitted since 11/91 Regional Host (Main) Facility serving 6 counties, see Lake Region.
Geary County	George Erichsen Noxious Weed Dir.	310 East 8th St. Junction City, KS 66441	(785) 238-4600 Fax: -2334	Participates in the Big Lakes Region.
Graham County	Mike Balthazor NWLEPG Ken Sheridan Noxious Weed Dir.	NWLEPG 414 N. West Hill City, KS 67642	(785) 421-2769 Fax: -3469	Participates in the Ellis County Region.

Gray County	Doug Domler	Gray County Road & Bridge P.O. Box 688 Cimarron, KS 67835	(316) 855-7701 Fax: -7704	Participates in the Ford County Region.
Greenwood County	Diane Boles	Farm Bureau Association P.O. Box 71 Eureka, KS 67045	(316) 583-7405 Fax: -7151	In the planning process of implementing an HHW program. Pursuing a regional effort with Coffey and/or Lyon counties.
Harper County	Roger Masenthin	Sunflower R C & D 705 E. Main Harper, KS 67058	(316) 896-7378 Fax: -7673	In the process of establishing a seven county regional program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt and Sumner counties.
Harvey County	Roy Patton Noxious Weed Dir.	Harvey County HHW Program County Courthouse Box 687 Newton, KS 67114	(316) 283-1890 Fax: 283-2927- 2222	Facility permitted since 1/92. County is in the process of establishing a SQG program.
Hodgeman County	Ray Hertzell	Hodgeman County Road and Bridge P.O. Box 7 Jetmore, KS 67854	(316) 357-8346 Fax: -8819	Participates in the Ford County Region
Jefferson County	Robert Abel, Jr. Noxious Weed Dir.	P.O. Box 83 Oskaloosa, KS 66066	(785) 863-2581 Fax: -2091	Facility permitted since 5/96.
Jewell County	Jim Vaughan	100 W. Hwy 36 Mankato, KS 66956	(785) 378-3826	Facility permitted since 5/96.
Johnson County	Phillip Wittek Betsy Sabel– Livingston Steve Williams	Environmental Dept. 11180 Thompson Ave Lenexa, KS 66219	(913) 492-0402 Fax: -0142	Facility permitted since 9/93. Permit amended in 4/96 to accept SQG waste.
Kansas City	Cary Houchins Solid Waste Coordinator	Water Pollution Control Div. 701 N. 7th St. Kansas City, KS 66101	(913) 573-5414 Fax: -5435	Facility permitted since 9/94. Serves Wyandotte County which includes Kansas City.
Kingman County	Charles Arensdorf Noxious Weed Dir.	823 Ave. A East Kingman, KS 67068	(316) 532-5241 Fax: -5311	Participates in Reno County Region May be joining Sunflower RC&D seven county regional program.
Kiowa County	Roger Masenthin	Sunflower RC&D 705 East Main Harper, KS 67058	(316) 896-7378 Fax: -7673	In the process of establishing a seven county regional program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt and Sumner counties.
Lake Region	Valerie Hill Regional HHW Coordinator	121 E. Second Ottawa KS 66067	(785) 242-2073 Fax: -5568	Regional program serving 6 counties: Franklin, Miami, Anderson, Coffey, Linn, Osage.
Leavenworth County	Ed Sass Noxious Weed Dir. Debbie McRill Solid Waste Dir.	23674 187th St. Leavenworth, KS 66048	(913) 727-2858 Fax: -9109	Facility permitted since 5/92.
Linn County	Darrell Lane	306 Main, P.O. Box 350 Mound City, KS 66056	(913) 471-4631 Fax: 795-2016	Participates in Lake Region.
Lyon County	Russell Torrens Noxious Weed Dir.	886 Road 160 Emporia, KS 66801	(316) 342-7311 Fax: -7311	Facility permitted since 6/96. Also offers services to Chase County.
Marion County	Rollin Schmidt Noxious Weed Dir.	P.O. Box 185, 141 N Coble Marion, KS 66861	(316) 382-3190 Fax: -3420	Facility permitted since 12/97.
Marshall County	Phil Osborne Noxious Weed Dir.	744 Pony Express Highway Marysville, KS 66508	(785) 562-3266 Fax: -5660	Facility permitted since 3/94. Regional Satellite Facility with the Big Lakes Region.
McPherson County	Scott Fitch	McPherson Area Solid Waste Utility P.O. Box 387 McPherson, KS 67460	(316) 654-3793 Fax: -3796	Facility permitted since 3/93.
Meade County	Marvin Stice	Meade County Road & Bridge P.O. Box 617 Meade, KS 67864	(316) 873-8720 Fax: -8724	Participates in the Ford County Region.
Miami County	Chuck Hadsall Solid Waste Dir.	P.O. Box 442 Paola, KS 66071	(913) 294-5859 Fax: -3228	Facility permitted since 11/91. Regional Satellite Facility with the Lake Region program.
Montgomery County	Bruce Vanatta Noxious Weed Dir.	P.O. Box 663 Independence, KS 67301	(316) 331-4139 Fax: 330-1177	Facility permitted since 11/95.

Morris County	Gary Krause Noxious Weed Dir.	Morris County Courthouse Council Grove, KS 66846	(316) 767-5519 Fax: -6861	Participates in the Big Lakes Region.
Nemaha County	Dave Mee Noxious Weed Dir.	Rt. 4, Box 40A Sabetha, KS 66534	(785) 336-3671 Fax: -0002	Participates in the Big Lakes Region.
Ness County	Dennis Langer	Ness County Road & Bridge Rt. 1, Box 116 Ness City, KS 67560	(785) 798-3350 Fax: -2704	Participates in the Ford County Region.
Norton County	Kirk Foley County Sanitarian Kurt Archibald	RR 3, Box 96A Norton, KS 67654-9522	(785) 877-5790 Fax: -5741	Facility permitted since 5/96.
Osage County	Dale Cole	Osage County, P.O. Box 226 Lyndon, KS 66451	(785) 828-3323 Fax: -4749	Participates in the Lake Region.
Pawnee County	Rod Wheaton Landfill Manager	723 NE Trail Rd Larned, KS 67550	(316) 285-2016 Fax: -3802	Participates in the Barton County Region.
Phillips County	Linda Shelton	Phillips County Health Dept. 784 6th St. Phillipsburg, KS 67661	(785) 543-6850 Fax: -6852	Participates in the Ellis County Region.
Pottawatomie County	Rodney Biesenthal Noxious Weed Dir.	405 East Campbell Westmoreland, KS 66549	(785) 457-2888 Fax: -2849	Participates in the Big Lakes Region.
Pratt County	Roger Masenthin	Sunflower RC & D 705 East Main Harper, KS 67058	(316) 896-7378 Fax: -7673	In the process of establishing a seven county regional program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt, and Sumner counties.
Reno County	George Sugars Margaret England	Solid Waste Complex 703 S. Mohawk Hutchinson, KS 67501	(316) 694-2976 Fax: -2565	Facility permitted since 11/91 Regional Facility serving 4 counties: Reno, Rice, Stafford, Kingman.
Rawlins County	Terry Steele	607 Main Atwood, KS 67730	(785) 626-3351 Fax: -9019	In the permitting and construction process. Facility expected to be online in 1998.
Rice County	Levi Beaver Noxious Weed Dir.	460 N. Logan Lyons, KS 67554	(316) 257-5331 Fax: -3922	Participates in the Reno County Region.
Riley County	Dennis Peterson Noxious Weed Dir.	6245 Tuttle Creek Blvd. Manhattan, KS 66503	(785) 539-3202 Fax: 565-6288	Facility permitted since 11/90. Regional (host) Facility serving 10 counties, see Big Lakes Region.
Rooks County	Alvin Perez	Rooks County Road & Bridge 303 S. Walnut Stockton, KS 67669	(785) 425-6521 Fax: -7078	Participates in the Ellis County Region.
Rush County	Jim Fischer Noxious Weed Dir.	P.O. Box 160 LaCrosse, KS 67548	(785) 222-3537	Participates in the Ellis County Region.
Russell County	Earl Hemphill	Russell City Fire Dept. P.O. Box 112 Russell, KS 67665	(785) 483-7111	Participates in the Ellis County Region.
Saline County	Karrie Grueber	P.O. Box 736 Salina, KS 67402	(785) 826-7380 Fax: -7373	Facility permitted since 12/93. Facility also offers services to Ellsworth, Lincoln and Ottawa counties.
Sedgwick County	Alan Gremmel George Huenergardt	Dept. Of Community Health 1900 E. 9th Street Wichita, KS 67214	(316) 268-8351 Fax: -8390	Facility permitted since 1/91. Permit amended in 1998 to accept SQG wastes.
Seward County	Mike Tabor HHW Director	Seward County Landfill RR2, Box 440 Liberal, KS 67901	(316) 626-3266 Fax: -4032	Facility permitted since 3/96.
Shawnee County	Kim Mettleton Recycling Director	1515 NW Saline, Suite 150 Topeka, KS 66618	(785) 233-4774 Fax: 291-4918	Facility permitted since 2/93. Constructing a new, larger facility (100' X 50'), to be open by spring 1999.
Sheridan County	Mike Balthazor NWLEPG	NWLEPG 414 N. West Hill City, KS 67642	(785) 421-2769 Fax: -3469	Contracts with the Ellis County Region.

Stafford County	Everett Hudson	Stafford County Public Works 209 N Broadway St. John, KS 67576	(316) 549-3597 Fax: -3499	Participates in the Reno County Region.
Sunflower RC&D	Roger Masinthin	Sunflower RC & D 705 East Main Harper, KS 67058	(316) 896-7378 Fax: -7673	Establishing a 7 county program with Barber, Comanche, Harper, Kingman, Kiowa, Pratt and Sumner counties.
Sumner County	Don Attebury	South Central Solid Waste Authority P.O. Box 837 Arkansas City, KS 67005	(316) 441-0107 Fax: -0401	Setting up a regional program with Cowley and Chautauqua counties. Will work with Sunflower RC&D.
Thomas County	Wayne Bossert	NWKGWM, P.O. Box 905 Colby, KS 67701	(785) 462-3915 Fax: -2693	Facility permitted since 9/94.
Trego County	Dale Phannenstiel	120 S. Main WaKeeney, KS 67672	(785) 743-6441 Fax: -2461	Participates in the Ellis County Region
Wabaunsee County	Don McDiffett Noxious Weed Dir.	Route 1, Box 3 Alma, KS 66401	(785) 765-3454	Participates in the Big Lakes Region
Washington County	Greg Koppes Noxious Weed Dir.	Washington County Courthouse Washington, KS 66968	(785) 325-2271 Fax: -2775	Participates in the Big Lakes Region.

### **Hazardous Product Examples and Inventory**

Check for hazardous products stored in your home. Use the list below to assess your habits and plan ways to improve your use, storage, and/or disposal of these products. If you are unsure about

disposal, contact your county or K-State Research and Extension office or the Kansas Department of Health and Environment at (785) 296-1600.

<i>Category/product</i>	<i>Is it properly stored?</i>	<i>Is information about proper disposal needed?</i>	<i>Are there special precautions to keep in mind?</i>
<b>HOUSEHOLD TRASH</b>			
Ash/sludge from burned home or garage trash (Illegal in many communities)			
Fluorescent bulbs/lamps (contain mercury)			
Waste motor oil			
Plastics wraps and containers (only hazardous when burned)			
Pesticide or solvent containers			
Empty containers from other products			
<b>CLOTHING AND FABRIC CARE PRODUCTS</b>			
Mothballs			
Dry-cleaning fluids			
Spots removers (solvent-based)			
Shoe/leather polish			
<b>HOBBY AND RECREATION PRODUCTS</b>			
Artist paints and solvents			
Charcoal lighter fluid			
Strong acids/bases*			
Bottled gas			
Batteries (contain mercury or cadmium)			
<b>BUILDING/WOOD CLEANERS AND REPAIR PRODUCTS</b>			
Building and wood cleaners with organic solvent ingredients:			
• Wood polishes			
• Wood floor and panel cleaners			
Building and equipment maintenance products:			

\*see note at end of chart, continued on next page

<i>Category/product</i>	<i>Is it properly stored?</i>	<i>Is information about proper disposal needed?</i>	<i>Are there special precautions to keep in mind?</i>
• Strong acids, bases*			
• Lead-based paint (see Chapter 6)			
• Oil/alkyd paints and primers			
• Marine and exterior paints containing mercury and/or pesticides			
• Aerosol paint products			
• Roof coatings and sealants			
• Rust removers			
• Silicon lubricants			
• Other lubricants			
• Adhesive removers			
• Paint and finish preparation products			
• Adhesives such as glues and caulks			
• Wood-preserving products			
• Products for brush or spray gun cleaning			
• Water repellants for wood and cement			
• Solvents, as used in degreasers and paint thinners, stains, and varnishes			
<b>PESTICIDES</b>			
Pesticides labeled "restrictive-use"			
General use pesticides			
Old pesticides			
Unwanted pesticides			
<b>VEHICLE MAINTENANCE CHEMICALS</b>			
Vehicle maintenance products such as antifreeze, oil and grease, and transmission fluid			
Solvents for oil and grease removal and disposal			
Engine and parts cleaners such as carburetor and brake cleaner			
Paints and paint preparation products			
Lead acid batteries			
Battery terminal protector			
Tire cleaners			
Rust removers			
Ignition wire dryer			
Gasket removers			
Aerosol paint and primer products			
Brake quieter			
Brush and spray gun cleaners			

NOTE: You can identify strong acids or bases in the product you are using by noting:

- if the hazard warning label recommends the user wear skin protection or avoid breathing vapors
- if the product label states the contents are corrosive
- if the product was intended for commercial use (industrial-strength cleaner)
- if the product is intended to manage difficult stains on hard surfaces (rust or lime remover)

Now that you have completed this inventory, you are more familiar with hazardous products found in your home. Review the inventory and consider the following:

- Do I need all of these products in my home?
- Are there less hazardous alternatives I could use?
- Do I have as much information as I need to make good use, storage, and disposal decisions?

*Kansas Home\*A\*Syst*, an environmental risk-assessment guide for the home, is a cooperative project of the Pollution Prevention Institute, K-State Research and Extension Service, Kansas Department of Health and Environment, U.S. Environmental Protection Agency, and the Environmental Department, Conservation District, and Natural Resources Conservation Service of Johnson County, Kansas, and Johnson County/K-State Research and Extension Office.

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Special thanks are due to all those who so graciously reviewed the materials. They are listed at the end of each chapter. It is appropriate to also acknowledge the staff of the national Farm\*A\*Syst/Home\*A\*Syst office who originally coordinated development of the original materials at the University of Wisconsin–Extension.



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**Kansas State University Agricultural Experiment Station and Cooperative Extension Service**

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