

# Hazardous Waste in the Home

SAFE & HEALTHY GUIDE



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## About Pennsylvania Resources Council (PRC)

PRC is Pennsylvania's oldest grassroots environmental organization. Since 1939 PRC has worked to protect the Commonwealth's resources for future generations through environmental education, recycling and waste diversion programs, anti-litter campaigns and much more.

**OUR MISSION:** promote conservation of our natural resources and protection of scenic beauty through public education and outreach in a collaborative effort with government agencies, businesses, charitable foundations and other nonprofit organizations

Learn more about PRC and its programs at [www.prc.org](http://www.prc.org).

# What is HHW?



**M**any common chemical products found in the home, garage, workshop, and garden shed contain hazardous ingredients which need to be used, stored, and disposed of responsibly and safely.

**Household Hazardous Waste (HHW)** is that portion of a household product which is no longer usable, leftover, or not wanted and has to be disposed of. HHW can be described as discarded solid or liquid materials or containers holding gases which may cause an adverse, harmful, or damaging biological effect in an organism or the environment.

# How Can You Tell if a Product is Hazardous?

A substance is considered hazardous if it can catch fire, if it can react or explode when mixed with other substances, or if it is corrosive or toxic. Substances such as paint thinner or car batteries may be obviously hazardous, but polishes, insecticides, and glues may not be so obvious.

## Read the label!

Look for precautionary words on the product label. (Products that don't have any of these words on the label are the least hazardous.)

**Poison** indicates the highest hazard level. "Poison" means that a product is highly toxic, and can cause injury or death if ingested, inhaled, or absorbed through the skin.

**Danger** means that a product is either highly toxic, flammable, or corrosive. "Danger" means the product could poison you, cause serious damage to your skin or eyes, or easily cause a fire.

**Warning** and **Caution** both indicate that a product is toxic, corrosive, reactive, or flammable.

**Flammable** products will easily ignite or burn. Paint, auto products, thinners, and other solvents are the most flammable home products.

Look for words on the product label like:

- "Do not use near heat or flame."
- "Combustible."
- "Do not smoke while using this product."

**Reactive** products can spontaneously ignite, explode, or create poisonous vapors when mixed with other products (therefore NEVER mix household products), or can explode when exposed to heat, air, water or, shock.

Fortunately, there are few consumer products still on the market that are explosive (except for fireworks); however, some older explosive products may still be stored in homes.

**Corrosive** products eat through materials (acid, for example). Oven, drain, and toilet bowl cleaners as well as auto batteries are common corrosive products.

Look for words on the product label like "causes severe burns on contact" or "can burn eyes, skin, throat."

**Toxic** substances are either immediately poisonous or may cause long-term illness such as cancer through repeated exposure. Poisoning can occur if toxic substances are inhaled into the lungs, eaten, swallowed, or absorbed through the skin (even in small doses).

Look for words on the product label like “harmful or fatal if swallowed” or “use only in a well-ventilated area”.

## Six Categories of HHW

### 1. Cleaning Products

- Aerosols
- Bathroom Cleaners
- Chlorine Bleach
- Oven Cleaners
- Floor Cleaners & Polish

### 2. Auto Maintenance

- Antifreeze
- Gasoline
- Car Waxes
- Brake Fluid
- Motor Oil
- Car Batteries

### 3. Home Environment Supplies

- Oil-based Paints & Stains
- Paint Thinners & Strippers
- Kerosene & Lighter Fluid
- Pool Chemicals

*Latex paint is NOT a hazardous waste material and may be dried out and disposed of with regular trash.*

### 4. Hobby Products

- Glues
- Paints, Stains, & Finishes
- Contact Cement
- Photographic Chemicals

### 5. Personal Care & Pharmaceuticals

- Nail Polish & Remover
- Hair Color
- Prescription Drugs
- Mercury Thermometers

### 6. Lawn & Garden Care

- Weed & Pest Killers
- Herbicides & Fungicides
- Insecticides & Insect Repellents
- Lawn Chemicals

**Note:** *Materials in some homes are not common.*

*They may be very old, not labeled, no longer manufactured, illegal to possess or use, or intended for use by a business or industry. These unusual materials warrant extra care in handling and disposal.*



# Test Your Knowledge!

- 1. Which of these materials will NOT be considered a household hazardous waste when its owner is finished with it?**
  - A. Varnish
  - B. Automotive Fluid
  - C. Latex Paint
  - D. Weed Killer
  
- 2. True or False: Substances labeled "Toxic" are only harmful through repeated exposure.**
  - A. True
  - B. False
  
- 3. List up to three words consumers can find on product labels that indicate the product is hazardous.**
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_

**ANSWER 1:** Latex Paint. In fact, as long as the paint is completely dry, unused portions may be disposed of in your regular garbage pick up. Latex paint is water-based and therefore non-hazardous.

**TIP:** To dry out latex paint faster for disposal, pour kitty litter or paint hardening powder into the can and mix with the paint.

**ANSWER 2:** B. False: Substances labeled "Toxic" can cause long-term illnesses through repeated exposure OR be immediately poisonous.

**ANSWER 3:** Could include: Poison, Danger, Warning, Caution, Flammable, Reactive, Corrosive, or Toxic.

# Hazardous Chemicals & Human Health



**The Pittsburgh Poison Center receives thousands of calls annually regarding hazardous chemical exposures. Almost all exposures occur within homes.**

**C**hemicals are part of our lives. Most are found in common products used for cleaning, automobile maintenance, home improvements, hobbies, personal care, lawn and garden care, and a variety of other tasks. However, there are reasons to be cautious about our exposure to some chemicals. An increasing number of studies have shown that environmental toxins, including those chemicals found in typical household cleaners and solvents, have detrimental effects on human health, both from immediate, acute exposures and from long term, low-dose exposures.

The Pittsburgh Poison Center at Children's Hospital of Pittsburgh receives thousands of calls annually from PA residents in the 45 counties west of the Susquehanna River. **Almost all of the exposure calls are for acute exposures to substances that include poisoning by HHW.**

# Seven Factors That Determine if a Chemical is Hazardous

- 1. Toxicity** *Amount of substance and how much damage it can cause.*  
If a small amount can be harmful the chemical is considered toxic.  
If a very large amount can cause damage, the chemical is considered non-toxic.
- 2. Route of Exposure** *How chemicals can enter your body — through inhalation, ingestion, skin or eye contact.*
- 3. Dose** *How much will affect my body — the greater the amount of substance that enters the body, the greater the effect on the body.*
- 4. Duration** *How long is too long.* The longer you are exposed to a chemical, the more likely you will be affected by it.
- 5. Latency** *How long it takes for a toxic effect to occur —* The time between the start of exposure and appearance of disease is the latency period. Some chronic effects caused by chemicals, such as cancer, have very long latency periods which can make it difficult to establish the relationship between exposure and illness.
- 6. Reaction & Interaction** *Exposure to more than one chemical.* A reaction may occur around multiple chemicals. For example, if household bleach and lye (drain cleaner) are mixed, chlorine gas and hydrochloric acid forms. Therefore, never mix chemicals.
- 7. Sensitivity** *Some people are more affected.* Age, sex, inherited traits, diet, pregnancy, health, medication, drug or alcohol use can factor in how an individual will react to a chemical and at what dose.



**1 out of 3** formulated products  
sold by major retailers contain chemicals  
known to pose health risks.



## Scientific evidence links many synthetic chemicals to increases in chronic diseases

such as asthma, learning and behavioral disorders, infertility, and cancers of the breast, brain, ovary, testicles, and prostate. Organizations like the Learning Disabilities Association of America's (LDA's) Healthy Children's Project and the Collaborative on Health and the Environment (CHE), have been formed to raise awareness about potentially harmful toxins and health risks.

Most people are exposed to chemicals at low doses for long periods of time (think using a household cleaner each week). Yet it is difficult to determine if diseases and disabilities are direct results of those particular chemicals. Humans are exposed to multiple chemicals with varying degrees of toxicity over long periods of time. Studies that combine chemicals to test for toxicity are rare, which means that the effects of combinations of household chemicals on human health is still unknown. **In fact, according to the Collaborative on Health and the Environment, "...mixtures [of chemicals] are one of the huge unknowns in toxicology. The numbers of chemical combinations experienced by people living in the real world is staggeringly large."**

**Children are at more risk of exposure to hazardous chemicals than adults.** The skin of infants and children is permeable and thus able to absorb environmental agents more efficiently. Because children eat, drink, and breathe more than adults in proportion to their body size, they may take in higher doses of contaminants than adults living in the same house.

**Height is a determining factor in exposure.** The adult breathing zone is four to six feet above from the ground; for children it is much lower. Concentrations of pollutants settle out of the air and stay near the floor. House dust, for example, may become enriched in pollutants entering through ventilation or tracked in from outdoors. Children who put objects in their mouths are at greater risk of exposure than are adults who touch contaminated substances then put their fingers in their mouths.

**Children under six have the highest percentage of poison exposures, making up 47% of the total in western Pennsylvania.**

**Pittsburgh Poison Center**



# How HHW Affects Health



**Aerosol** cans no longer use CFCs (chlorofluorocarbons) that damage the ozone layer, but many now contain isobutene, propane, and butane. Studies on animals show that these chemicals are toxic to the heart and central nervous system.

**All Purpose Cleaners** may contain ammonia or chlorine. Ammonia can irritate lungs, causing coughing or shortness of breath. Chlorine forms cancer causing compounds when released into the environment. Mixed together, they form a deadly chloramine gas.



**Drain Cleaners** contain lye, hydrochloric and sulphuric acids that can burn human tissue, causing permanent damage. If not used precisely according to directions, they can also explode.

**Glass Cleaners** emit ammonia mist which you can breathe. Ammonia is toxic but most glass cleaning products do not have a warning label.

**House & Garden Pesticides** exposure can drastically increase the risk of childhood leukemia and are linked to birth defects and cancer.



**Toilet Bowl Cleaners** contain chlorine and hydrochloric acid which can burn skin and eyes. Swallowing these products can cause death.

*Note: Effects from these Household Chemicals typically occur with long-term repeated exposure. Reduce your risk by avoiding frequent use of these chemicals, or their usage altogether.*

# HHW and the Environment

## U.S. Environmental Protection Agency (EPA) estimates

- Average American homes can accumulate **100 lbs. of HHW**
- Americans generate **1.6 million tons of HHW per year.**

HHW can have immediate and lasting impact on the environment — practice safe use and disposal of these materials to protect our environment.



Everyone wants clean water, air, and soil — we rely on these resources to live. Western Pennsylvania is abundant with natural resources, including miles of rivers and streams, expanses of forests and rich farm land. But hazardous products poured down a drain or buried in a backyard can permanently damage these resources, harming our way of life.

It is crucial everyone understand the detrimental effects improperly disposed household hazardous waste can have on the environment. These substances can kill living organisms in a lake or river, destroy wildlife and vegetation in a contaminated area, cause major reproductive complications in wildlife, or otherwise limit the ability of an ecosystem to survive. Certain hazardous substances also have the potential to explode or cause a fire, threatening both wildlife and human populations.

# How HHW Affects the Environment

**Waterways** - Nitrogen, phosphorus, and ammonia, found in many household cleaners and fertilizers are dangerous water contaminants which can lead to algal blooms, elevated toxin levels in waterways, and mass die-offs of fish and other aquatic life.

**Land** - Leaking or spilled automotive fluids, as well as pesticides and fertilizers can add a variety of chemicals to the soil, which reduces fertility and can contaminate crops and other plants, reduce the fertility of the soil, and harm people and wildlife. Soil contamination is difficult and expensive to remediate and can persist in the environment for centuries.

**Air** - Nitrogen, phosphorus, and ammonia from household cleaners and fertilizer can react in the atmosphere with other chemicals to produce harmful tropospheric ozone, which triggers breathing problems, and fine particulate matter, which drives heart and lung disease. Aerosols may also contain “volatile organic compounds” (VOCs) which contribute to global warming and ground-level ozone, as well as can contaminate ground and surface water.

**Wildlife & Pets** - Metals and contaminants in antifreeze, as well as in many fertilizers and cleaners, are toxic to pets, wildlife, and aquatic life. Amphibians, like frogs and salamanders, are especially sensitive to the impact of household chemicals, like fertilizers and pesticides. According to the ASPCA, “DEET” and insect repellents that contain DEET can be very harmful to dogs’ and cats’ neurological systems which can be fatal. Additionally, products that contain nicotine, such as e-cigarette liquid, can cause serious health impacts in dogs, including seizures and death. Keep HHW on higher shelves and cabinets, away from pets and wildlife.



# Steps to Take

**P**roper use, storage, and disposal of HHW is essential to protecting the environment and health. The best and easiest method to reduce HHW and prevent pollution from unsafe products is to not produce the waste at all.

## Source Reduction

Careful planning and shopping can lead to *source reduction* — that is, reducing the amount of hazardous materials coming into the home, thus the toxic waste generated is reduced. Before buying a product, read the label carefully to make sure it will do what you want, but remember, once you buy the product you are legally responsible for disposing of it properly.

**When disposed of improperly, HHW poses a threat to sanitation workers, emergency personnel, and the environment.** Hazardous materials discarded in trash can ignite or explode in a collection truck. Trash haulers have been injured from fumes and splashing chemicals.

The safety of emergency personnel is also jeopardized when they respond to fires, since many HHW materials are highly reactive. When taken to regular landfills, these wastes can leach into surface and ground water — the very sources for drinking water



### HHW Best Practices

- **Buy only what is needed**
- **Use less toxic alternatives**
- **Give away unused portions to friends**
- **Bring HHW to a collection event**
- **Take responsibility for what you purchase**

# Minimize Negative Environmental and Health Impacts

## 1. **Avoid suspect products.**

Be wary of labels with the words caustic, corrosive, danger, explosive, poison, flammable, toxic, or warning especially if pregnant or nursing.

## 2. **Use alternatives.**

Safer products can be found in many chain and independent stores. Recipes to make your own can be found on page 14.

## 3. **Reduce consumption.**

Only purchase the amount of product needed for a job.

## 4. **Use products safely.**

Follow label directions on how to use and recommended amounts. Use safety equipment such as gloves, protective eyewear, or ventilating fans when the label recommends avoiding skin and eye contact or inhalation of vapors.

## 5. **Dispose of responsibly.**

Recycle what can be recycled in your area. Contact your municipal/county office or call the PA DEP Recycling Hotline at 1-800-346-4242 to find Household Chemical Collections in your area. (See page 17 for more information.)

## 6. **Store products safely.**

Keep in original containers with readable labels. Close lids tightly and store hazardous products in a cool, dry area away from children, animals, and food products.

## 7. **Prevent explosions & combinations.**

Store HHW away from heat, sparks, and flames. Separate flammables, corrosives, and poisons and place on separate shelves. If a product's container is deteriorating, place the entire container in a plastic bucket with a tight-fitting lid. Surround it with a non-flammable absorbent, such as kitty litter.

## 8. **Never dump HHW.**

HHW is not safe to be burned, buried, thrown in trash or backyard, or poured in a drain or storm sewer.

## 9. **Never let children handle HHW.**

Teach children the dangers of chemicals. Keep emergency numbers near the phone. Poison Control Center central toll-free number is 1-800-222-1222.

## 10. **Never mix HHW.**

Do not reuse containers for other purposes.

# HHW Collection Events

PRC partners with individuals from industry, environmental, education, non-profit, and government organizations to host a number of collections in western PA. These collection events allow thousands of PA residents to responsibly dispose of over 350,000 pounds of HHW annually.

For upcoming collection events and responsible disposal options near you, contact the PA DEP Recycling Hotline at 1-800-346-4242 or visit [www.prc.org](http://www.prc.org).

## Transport Products Safely

**When transporting items to an HHW collection event, please take the following precautions:**

- Wear protective gloves when handling household hazardous wastes. Don't bring children or pets along to the collection site.
- Pack containers in a lined box in case of a spill.
- Place products upright in a cardboard box and secure them so that they don't tip over in transport.
- Don't mix different products together.
- Tighten all lids before transporting.
- Bring items in their original containers, or clearly mark contents on the container. If unaware of the specific product name, provide the product category.



# Non-toxic Alternatives

Safer products are readily available and can be found in home improvement, grocery, natural food stores and online. These alternative products are safer, equally effective, and often less expensive than their more toxic counterparts.

## Homemade Products

Handmade versions of most products can be pulled together right in your own home. These easy-to-make homemade products are inexpensive, healthy alternatives that are just as effective as store-bought materials. You may already have the ingredients to make your own cleaning products in your pantry!

### CHECKLIST

How many of these products do you already have in your home?

- baking soda
- white distilled vinegar
- liquid soap
- Borax





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### **All-Purpose Cleaner**

1 quart warm water  
1/4 cup undiluted white vinegar  
1 teaspoon liquid soap  
1 teaspoon borax

Mix ingredients and store in a spray bottle. Use for cleaning countertops, floors, walls, carpets and upholstery.

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### **Glass Cleaner**

1 quart warm water  
1/4 cup white vinegar  
(or 2 tablespoons lemon juice)

Mix ingredients and store in a spray bottle. Dip a wet sponge in baking soda to clean a glass oven door.

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### **Disinfectant**

Use 1/2 cup of borax in one gallon of hot water. To prevent mold or mildew from forming, don't rinse off the borax solution.

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### **Oven Cleaner**

1 quart warm water  
2 tablespoons liquid soap  
2 teaspoons borax

Spray on sides of oven, watch 20 mins., then clean. You can also pour salt on spills as they occur and wipe while your oven is warm.

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### **Drain Cleaner**

Pour 1/4 cup baking soda down the drain, followed by 2 ounces of vinegar. Cover the drain and let sit for 15 minutes. Rinse with 2 quarts of boiling water. Use this treatment regularly to prevent clogged drains and keep them smelling fresh. Also, pour boiling water down drains on a weekly basis to prevent grime buildup.

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### **Toilet Bowls**

Put 1/4 cup borax in toilet bowl and let set overnight. Next day, scrub — or scrub with a solution of 1/2 cup borax to 1 gal. of water.

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### **Air Fresheners**

Set out a dish of vinegar, or boil 1 tablespoon white vinegar in 1 cup of water to eliminate unpleasant cooking odors.

Pour vanilla extract or essential oils on a cotton ball in a saucer. Use in your car, home or refrigerator.

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# Take the Quiz!

- 1. What is the best way to avoid an explosion caused by household chemicals**
  - A. Surround the product with Borax
  - B. Store flammables, corrosives, and poisons on separate shelves
  - C. Refrigerate all household chemicals
  - D. Wear protective gloves when handling household chemicals
- 2. How many pounds of household chemicals are accumulated in an average American home each year?**
  - A. 10 pounds
  - B. 50 pounds
  - C. 100 pounds
- 3. Which group is most affected by interaction with household chemicals? (Select all that apply)**
  - A. Children
  - B. Adult men
  - C. Pregnant women
  - D. Young adults

**ANSWER 1 :** B. Avoid an explosion by storing these products separately. Also be sure to store household chemicals away from sources of heat, spark, or flame, and never mix household chemicals.

**ANSWER 2 :** C. According to the U.S. Environmental Protection Agency, the average American home can accumulate up to 100 pounds of HHW, ranging from auto fluids to household cleaners.

**ANSWER 3 :** A & C. Children and pregnant women are often the most impacted by HHW. Children eat, drink, and breathe more than adults in proportion to their body size and can therefore take in higher doses of contaminants.

# Resources

## **Pennsylvania Resources Council (PRC)**

PRC, founded in 1939, is one of the oldest non-profit environmental groups in Pennsylvania. PRC's mission is to promote conservation of our natural resources and protection of scenic beauty through public education and outreach in a collaborative effort with government agencies, business, charitable foundations and other nonprofit organizations. PRC has extensive experience in public education initiatives, especially on topics including household hazardous waste, recycling, litter prevention, composting, and watershed awareness.

[www.prc.org](http://www.prc.org) / 412-488-7452

## **PA Department of Environmental Protection (PA DEP)**

State government agency charged with environmental permitting, regulations, and educating residents of Pennsylvania on a multitude of environmental topics.

PA DEP Recycling Hotline: [www.dep.state.pa.us](http://www.dep.state.pa.us) / 1-800-346-4242

## **United States Environmental Protection Agency (US EPA)**

Federal agency whose mission is to protect human health and the environment.

[www.epa.gov](http://www.epa.gov)

## **Healthy Children Project**

### **A project of the Learning Disabilities Association of America**

Raises public awareness about potentially harmful toxins and health risks targeting women and men of reproductive age (especially those at high-risk), their children, and the health care professionals who serve them to make more informed and safer choices to protect our children and future generations from preventable harm.

[www.healthychildrenproject.org](http://www.healthychildrenproject.org) / 412-341-0224

## **Pittsburgh Poison Center (PPC)**

24-Hour Emergency Phone Number: 800-222-1222

Administrative Office: 412-390-3300

[www.upmc.com/services/poison-center](http://www.upmc.com/services/poison-center)

## **Women for a Healthy Environment**

Educates and empowers women to act as ambassadors about environmental risks so that they can make healthy choices for themselves and their families and advocate for change for a better tomorrow for all.

[www.womenforahealthyenvironment.org](http://www.womenforahealthyenvironment.org)

## IN PARTNERSHIP WITH

**Allegheny County Health Department**

[www.achd.net/recycling](http://www.achd.net/recycling)

**Armstrong County Recycling Center**

[www.co.armstrong.pa.us/recycling/](http://www.co.armstrong.pa.us/recycling/)

**Beaver County Department of Waste Management**

[www.beavercountypa.gov/Depts/WasteMgmt/](http://www.beavercountypa.gov/Depts/WasteMgmt/)

**Cambria County Solid Waste Authority**

[www.cambriarecycles.org](http://www.cambriarecycles.org)

**Washington County Planning Commission**

[www.co.washington.pa.us/177/Recycling](http://www.co.washington.pa.us/177/Recycling)

**PA DEP Recycling Hotline**

1-800-346-4242



**Pennsylvania  
Resources  
Council**

Working to protect the environment since 1939

**PRC WEST** 64 South 14th Street, Pittsburgh, PA 15203

**PRC EAST** 3606 Providence Road, Newtown Square, PA 19073

[www.prc.org](http://www.prc.org)