

Handbook of Household Chemical Hazards and Non-Toxic Solutions

SAGINAW CHIPPEWA ENVIRONMENTAL TEAM

**"PROTECTING OUR
ENVIRONMENT
FOR THE FUTURE,
GENERATIONS
OF CARING"**



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Introduction

- You can help keep chemicals out of the environment and make your home safer by being aware of the chemical dangers in your home.
- Knowing how to handle, use, and dispose of common household chemicals can keep you and your family safer.
- Learning how to make and use safe cleaning alternatives will save money and keep harmful chemicals out of the environment.
- We hope that you will find this handbook useful for identifying some household chemical dangers and safe alternatives.



Household Chemical Hazard Identification

We all have many products in our homes and garages that may be hazardous.

These products may pose serious fire, health, or environmental hazards.

However, if used, stored, and disposed of properly, they can be relatively safe.

This handbook will help you:

- identify chemical hazards in your home;
- make your home safer;
- discover less toxic alternatives.



Household Chemical Hazard Identification

Common Household Chemicals

- Automotive fluids (oil, anti-freeze, fuel, brake fluid, windshield washer fluid, transmission fluid, etc...)
- Household cleaners (bleach, ammonia, disinfectants, carpet freshener, air freshener, window cleaner, furniture polish, etc...)
- All laundry products
- Health and beauty products (hairspray, hair remover, fingernail polish, fingernail polish remover, hair coloring products, medications, etc...)



Household Chemical Hazard Identification

Common Household Chemicals (continued)

- Lawn and garden products (fertilizer, pesticides, herbicides, gasoline, oil, etc...)
- Barbecue products (propane, charcoal briquettes, lighter fluid, etc...)
- Home maintenance (paint, varnish, stains, oils, mouse/rat poison, etc.)

Some of these products we wouldn't think of as hazardous because we use them on our bodies, however, if misused they can be dangerous. For instance hairsprays and aerosols are highly flammable.



Household Chemical Hazard Identification



Tips for making your home a safety zone

Familiarize yourself with the products in your home, their locations and purpose. Many products are more hazardous than you think.

- Take inventory of your household chemicals
- Read labels and follow directions for use
- Keep chemicals in original containers
- Store chemicals away from food and children

Household products contain hundreds of potentially harmful substances

Household Chemical Hazard Identification



Tips for making your home safety zone *(continued)*

- Don't store flammable liquids or gases in the house
- Keep away from children by placing child-proof locks on storage areas
- Understand household chemical properties
- Properly dispose of unused or unwanted products
- Have emergency numbers handy



Household Chemical Hazard Identification



Household Chemistry Basics

Household chemicals can be:

- Solid, liquid, or gaseous
- An acid like vinegar
- A base like bleach or drain opener
- Float on water like oil
- Sink in water like antifreeze
- Dissolve in water like sugar
- Can “break up” oils like dishwashing detergent

Good rule of thumb, avoid mixing things with opposite properties!

Household Chemical Hazard Identification

There are many ways to communicate hazards and dangers. Some are very familiar in the home, others are useful to businesses, emergency responders, and people who work with large amounts of chemicals.

The next several pages give examples of the ways chemical hazards are communicated.



Household Chemical Hazard Identification

Hazards can be communicated by pictures on the labels



Corrosive



Environmental
Hazard



Poison/Toxic



Flammable



Biohazard

Household Chemical Hazard Identification

Hazards can be communicated by special words on labels such as:

- **Poison/Toxic:** can injure or kill if absorbed through the skin, swallowed, or inhaled.
- **Irritant:** causes soreness or swelling of skin, eyes, mucous membranes, or respiratory system.
- **Flammable:** easily catches fire and tends to burn rapidly.
- **Flammable Liquid:** has a flash point below 140°F
- **Combustible Liquid:** has a flash point from 140°F to 200°F
- **Corrosive:** a chemical or vapors that can cause material or living tissue to be destroyed.



Household Chemical Hazard Identification

And by words such as:

DANGER/WARNING/CAUTION!

DANGER means that the chemical is harmful or fatal if swallowed. Ingestion of a small taste to a teaspoon could kill an average sized adult.

WARNING means that the chemical is harmful if swallowed. Ingestion of a teaspoon to an ounce could kill an average sized adult.

CAUTION means that the chemical is harmful if swallowed.



Household Chemical Hazard Identification

Fire departments and other public safety officials may use NFPA hazard communication.

- NFPA stands for the “National Fire Protection Association”
- The NFPA Diamond is a way of communicating the hazards of chemicals
- The four smaller diamonds represent the types of hazards
- The numbers in blue, red, and yellow diamonds rank the Hazard, 1=low to 4=high. The white diamond communicates the special risk (in this example “reacts with water”).



Health Hazard



Fire Hazard



Stability



Special Hazard



NFPA Diamond

The NFPA Diamond is sometimes found on household chemical labels

Household Chemical Hazard Identification



Another method of communicating chemical hazard is the Hazardous Materials Identification System or HMIS®. It is similar, but not identical, to the NFPA system.

- Uses similar categories for ranking
- Uses numbers for blue, red, & orange (0 = lowest—4 = highest)
- White the type of protective equipment or clothing (a—k) needed
- May be found on household labels

Chemical Name	
HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	0

Household Chemical Hazard Identification



HAZARDOUS MATERIALS IDENTIFICATION SYSTEM																									
HAZARD INDEX	PERSONAL PROTECTION INDEX																								
4 = SEVERE HAZARD 3 = SERIOUS HAZARD 2 = MODERATE HAZARD 1 = SLIGHT HAZARD 0 = MINIMAL HAZARD	<table border="1"> <tr><td>A</td><td></td></tr> <tr><td>B</td><td></td></tr> <tr><td>C</td><td></td></tr> <tr><td>D</td><td></td></tr> <tr><td>E</td><td></td></tr> <tr><td>F</td><td></td></tr> <tr><td>G</td><td></td></tr> <tr><td>H</td><td></td></tr> <tr><td>I</td><td></td></tr> <tr><td>J</td><td></td></tr> <tr><td>K</td><td></td></tr> <tr><td>X</td><td>Consult your supervisor or S.O.P. for 'SPECIAL' handling directions</td></tr> </table>	A		B		C		D		E		F		G		H		I		J		K		X	Consult your supervisor or S.O.P. for 'SPECIAL' handling directions
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The HMIS method provides more information and gives recommendations for personal protection equipment.

Eco-friendly Alternatives for Common Household Chemicals



BASIC INGREDIENTS FOR NON-TOXIC CLEANERS

Baking Soda - Cleans, deodorizes, and softens water to increase cleaning power of soap.

Borax - Cleans, deodorizes, and softens water. Excellent disinfectant. In the laundry section of a grocery store.

Soap - Biodegrades safely and completely and is non-toxic. Sold as liquid, flakes, powder, or in bars.

Washing Soda - Cuts grease, removes stains, softens water, and disinfects. Sold as “sodium carbonate” in the laundry section of a grocery store.

White Vinegar or Lemon Juice - Cuts grease and freshens.

Cornstarch - Can be used to clean windows, polish furniture, shampoo carpets and rugs.



Eco-friendly Alternatives for Common Household Chemicals



CREAMY SOFT SCRUBBER

Pour about 1/2 cup of baking soda into a bowl, and add enough liquid soap to make a texture like frosting. Scoop the mixture onto a sponge and wash the surface. This is the perfect recipe for cleaning the bathtub because it rinses easily and doesn't leave grit.

Note: Add 1 teaspoon of vegetable glycerin to the mixture and store in a sealed glass jar, to keep the product moist. Otherwise just make as much as you need at a time.



Eco-friendly Alternatives for Common Household Chemicals



WINDOW CLEANER

1/4-1/2 teaspoon liquid soap

3 tablespoons vinegar

2 cups water

Spray bottle

Put all the ingredients into a spray bottle, shake it up a bit, and use as you would a commercial brand. The soap in this recipe is important. It cuts the wax residue from the commercial brands you might have used in the past.



Eco-friendly Alternatives for Common Household Chemicals



OVEN CLEANER

1 cup or more baking soda

Water

A squirt or two of liquid soap

Sprinkle water generously over the bottom of the oven, then cover the grime with enough baking soda that the surface is totally white. Sprinkle some more water over the top, let set overnight. Wipe up the next morning. When the worst of the mess is removed, dab a bit of liquid detergent or soap on a sponge, and wash the remaining residue from the oven.



(If this recipe doesn't work for you it is probably because you didn't use enough baking soda and/or water.)

Eco-friendly Alternatives for Common Household Chemicals



FURNITURE POLISH

1/2 teaspoon oil, such as olive (or jojoba, a liquid wax)
1/4 cup vinegar or fresh lemon juice

Mix the ingredients in a glass jar. Dab a soft rag into the solution and wipe onto wood surfaces.

Cover the glass jar and store indefinitely.



Eco-friendly Alternatives for Common Household Chemicals



MOLD & MILDEW CLEANERS

Tea Tree Treasure

2 teaspoons tea tree oil

2 cups water

Combine in a spray bottle, shake to blend, and spray on problem areas. Do not rinse. Makes two cups.

Vinegar Spray

Straight vinegar reportedly kills 82% of mold. Pour some white distilled vinegar straight into a spray bottle, spray on the moldy area, and let set without rinsing. Smell will dissipate in a few hours.



Eco-friendly Alternatives for Common Household Chemicals



CARPET STAINS

Mix equal parts white vinegar and water in a spray bottle. Spray directly on stain, let sit for several minutes, and clean with a brush or sponge using warm soapy water.

For fresh grease spots, sprinkle corn starch onto spot and wait 15 - 30 minutes before vacuuming.

For a heavy duty carpet cleaner, mix 1/4 cup each of salt, borax and vinegar. Rub paste into carpet and leave for a few hours. Vacuum.



Eco-friendly Alternatives for Common Household Chemicals



DISINFECTANT

2 teaspoons borax
4 tablespoons vinegar
3 cups hot water

Mix all ingredients together in a spray bottle.

For stronger cleaning power add 1/4 teaspoon liquid soap. Wipe on with dampened cloth or use non-aerosol spray bottle.



Eco-friendly Alternatives for Common Household Chemicals

DRAIN CLEANER

For light drain cleaning, mix 1/2 cup salt in 4 liters water, heat (but not to a boil) and pour down drain.

For stronger cleaning, pour 1/2 cup baking soda down drain, then 1/2 cup vinegar. After 15 minutes, pour in boiling water to clear residue.



Caution: Plastic pipes can melt if excess boiling water is used.

Do not *use this method after trying a commercial drain opener! Vinegar can react with the drain opener to create dangerous fumes.*



Eco-friendly Alternatives for Common Household Chemicals



FLOOR CLEANERS

Vinyl and linoleum: mix 1 cup vinegar and a few drops of baby oil in 1 gallon warm water. For tough jobs, add 1/4 cup borax. Use sparingly on linoleum.

Wood: apply a thin coat of 1:1 vegetable oil and vinegar and rub in well.

Brick and stone tiles: mix 1 cup white vinegar in 1 gallon (4L) water; rinse with clear water.

Most floor surfaces can be easily cleaned using a solution of vinegar and water. For damp-mopping wood floors: mix equal amounts of white distilled vinegar and water. Add 15 drops of pure peppermint oil; shake to mix.

Eco-friendly Alternatives for Common Household Chemicals



WATER RINGS ON WOOD:

Water rings on a wooden table or counter are the result of moisture that is trapped under the topcoat, but not the finish.

Try applying toothpaste or mayonnaise to a damp cloth and rub into the ring. Once the ring is removed, buff the entire wood surface.



Eco-friendly Alternatives for Common Household Chemicals



TOILET BOWL CLEANER:

1/4 cup baking soda
1 cup vinegar

Combine ingredients and pour into basin and let it set for a few minutes.

Scrub with brush and rinse.

A mixture of 2 part borax and one part lemon juice will also work.



Household Chemical Inventory

Kitchen:

Eco-Friendly Alternatives:



Household Chemical Inventory



Bathroom:



Eco-Friendly Alternatives:



Household Chemical Inventory



Laundry Room/Basement:



Eco-Friendly Alternatives:



Household Chemical Inventory

Garage:

Eco-Friendly Alternatives:



Household Chemical Inventory

Lawn & Garden Supplies:

Eco-Friendly Alternatives:



The Importance of Water Conservation



In the Bathroom

- ◆ Repair leaking or dripping faucets
- ◆ Turn water off while brushing your teeth
- ◆ Take short showers instead of baths
- ◆ Install a low flow shower head
- ◆ Make sure your toilet is working properly
- ◆ Excessive flushing and a running toilet can waste 3-7 gallons of water daily
- ◆ Toilets use the most water in the house wasting 45% of water
- ◆ **75% of water is used in the bathroom**





Water Conservation Tips

In the Laundry Room

- ◆ Repair any leaks around the washer taps and hoses
- ◆ Only use the washer when you have a full load and use the shortest cycle
- ◆ Adjust the water level and use cold water instead of hot
- ◆ Use environmentally friendly (low or no phosphate and biodegradable detergents)



- ◆ **The laundry room accounts for 20% of household water use**

Water Conservation Tips

In the Kitchen

- ◆ Repair leaking or dripping faucets
 - ◆ Only run the dishwasher with a full load
 - ◆ Keep a pitcher of water in the fridge so you don't have to run the water to get it cold
 - ◆ Don't run the water continuously
 - ◆ Make sure you turn the tap completely off
-
- ◆ **A tap leaking ONE drop of water every second wastes more than 25 liters of water a day, that's 9,000 liters a year**



Water Conservation Tips



Outside: Lawns and Gardens

- ◆ Check hoses, faucets, and sprinklers for leaks
- ◆ Water lawns and gardens in the morning, so the water isn't evaporated quickly by the heat
- ◆ Healthy lawns need only 2-5 cm of water per week (once a week watering)
- ◆ Grass about 2 inches long holds water better
- ◆ Use a broom to clean off sidewalks and driveways not water from a hose
- ◆ Collect rainwater from the eaves of your house in a barrel and use to water indoor plants, the garden, and yard.
- ◆ **Sprinklers use 50% more water in just 1 hour** than 10 toilet-flushes, two 5-minute showers, two dishwasher loads, and a full load of clothes!!!!



Other Waste Disposal Information



Tire Collection

- ◆ Contact: Tribal Recycling Dept. at (989)772-8810

Recycling

- ◆ Tribal Recycling Dept. (989)772-8810
- ◆ Isabella County Recycling (989)773-9631

Quick References

Emergencies	911
Tribal Police	(989)775-4700
Tribal Fire	(989)775-4866
Central Dispatch	(989)773-1000
Michigan State Police	(989)775-5951
Poison Control	1-800-222-1222
Oil/Chemical/Maritime Incidents	1-800-424-8802
Casino Security	(989)775-5170



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