

**“A Citizens Guide to Household Hazardous Materials”**

- A hazardous material is a substance that when used or released improperly can cause serious problems for humans, animals and the environment.
- Hazardous materials come in three forms: solids, liquids and gases.
- At any given time the average American home contains three to ten gallons of potentially hazardous materials.
- Most hazardous materials found in the home fall into three classes: flammable, corrosives and poisons. Flammable materials burn, corrosives damage skin and poisons are toxic substances. All three can cause serious injury or death.
- Corrosive materials include both acids and bases. Acids and bases are chemical opposites however both damage human tissue.
- Acids and bases are measured on the “ph” scale (0 – 14). Neutral being 7, a strong acid is 0 – 3 and a strong base is 11 – 14.
- Examples of acids are: hydrochloric acid, sulfuric acid (mixed in water), metal cleaners and tub and tile cleaners.
- Examples of bases are: ammonia, drain cleaner, oven cleaner and bleach.
- Labels on household products that say “DANGER” indicate the presence of a strong acid or base.
- Chemicals can enter the body through inhalation, ingestion, absorption and injection.
- The most common route of chemical exposure for adults is through inhalation and absorption, with children its ingestion.
- A brief contact with a chemical that has an immediate effect is called an acute exposure.
- Some people can have an allergic reaction to an acute chemical exposure requiring immediate emergency medical attention.
- A long term exposure to a chemical is known as a chronic exposure.
- Cancer and birth defects are sometimes the result of a chronic exposure to a hazardous material.

- Household chemicals are often found in the kitchen, bathroom, garage and storage shed. It is best to keep these materials locked up or at least out of sight so they don't draw the attention of small children.
- On average two million American children are accidentally poisoned each year.
- Hygiene products, beauty supplies, cleaning compounds, and medicines are just a few examples of household substances that can be poisonous when consumed by children.
- Household chemicals must never be mixed as this could cause dangerous fumes or initiate a violent reaction.
- Products from different companies made for the same purpose must never be mixed because some of their ingredients may be different.
- Lead based paint was banned in the US in 1978. Most homes built between 1940 and 1960 have lead based paint. Old homes with peeling paint should have surfaces chipped and repainted as lead paint chips ingested by children could cause serious health problems.
- Homes built prior to WW II could have elevated levels of lead in the water if they still have the original lead pipes.
- Carbon monoxide is a product of combustion. Homes that burn natural gas, propane, oil, kerosene, coal, wood or pellets should have carbon monoxide detectors installed.
- Carbon monoxide has the same density as air so it will spread evenly throughout the home. The symptoms of carbon monoxide poisoning often mimic the flu. Exposure to an excessive amount of carbon monoxide could be deadly
- Under no circumstance should you ever use a portable generator inside a building or anywhere close to an air intake to a building.
- Flammable liquids used to fuel power equipment should be kept in a well ventilated storage building at least 50' from the house. The storage building should be free of pilot lights or any other open flame device
- Motor fuels should be stored in a conspicuously marked container that is never used for anything else. The container should not go above three quarters full as this will allow room for vapors to expand.
- Gasoline is to be used as motor fuel only. Gasoline should never be stored in the home. Vapors from gasoline are heavier than air and will accumulate close to the

- floor. If gasoline vapors come in contact with an open flame there could be an explosion and fire.
- Some local codes do not permit the use of kerosene heaters in multi-occupancy buildings. Never use a kerosene heater while sleeping. Make sure the unit has cooled down before refueling and never refill a kerosene heater inside a building.
  - Home heating fuel tanks, whether they are located inside or outside the home should be positioned on a cement slab and be adequately secured to the building to prevent tip over.
  - Home heating fuel tanks must be inspected at regular intervals for excessive corrosion and replaced as needed. The environmental cleanup resulting from a home heating fuel tank leak can be very expensive.
  - Propane tanks supplying home heating and cooking appliances should be checked for damage and corrosion. Check the condition of hoses and connections.
  - Propane tanks should be stored outside, in well ventilated areas, in the upright position and secured to prevent tip over. Flexible hoses should also be used on propane tanks.
  - All barbeque propane tanks made after 2002 have been equipped with an overfill prevention device. If you have an older tank, return it to a dealer for a new, safer one.
  - If you smell natural gas leave the building for a safe location, never touch light switches or do anything that could generate a flame or spark and call 911 and the gas company immediately.
  - The pilot lights of propane and natural gas home heating appliances should only be re-lit by qualified technicians.
  - Vehicle batteries contain sulfuric acid which is corrosive and hydrogen gas which is flammable. The improper use or charging of batteries could cause an explosion.
  - Anti-freeze is a colored liquid with a sweet smell which may attract children or pets. Anti freeze, especially blends containing ethylene glycol are environmentally unfriendly and poisonous to humans and animals if ingested.
  - Solvents such as oil based paint, paint thinner, varnish and lacquer are flammable and give off vapors. These materials are to be used in well ventilated areas only.
  - Pool chemicals should be kept in a tightly sealed container and not left in direct sunlight. Pool chemicals should never be mixed. Pool chemicals should be stored

in a cool dry place. Never store pool chemicals near petroleum based liquids or an open flame.

- Pesticides are chemicals used to kill weeds, insects, rodents and fungus. These products are extremely poisonous and often flammable. Overuse of pesticides on lawns and gardens could have a negative impact on the local water table.
- The Poison Control Hotline is 1-800-222-1222.

### **Alternatives to using commercial household cleaning chemicals**

- Drain cleaner – use a plunger, than add ½ cup baking soda, ½ cup vinegar, 2 quarts of boiling water
- Oven cleaner – sprinkle salt on the spill while the oven is still warm, let sit a few minutes than wipe down with a baking soda and warm water solution
- Spot remover – sprinkle club soda on the stain and wipe
- Clothes whitener – add vinegar instead of bleach
- Window cleaner – ½ cup vinegar in ½ gallon of water
- All purpose cleaner – 1 cup of baking soda in 1 quart of hot water
- Toilet bowl cleaner – make a paste out of baking soda and lemon juice
- Furniture polish – 1 tablespoon of lemon oil in 1 pint of baby oil

### **Preventative Actions and Safe Handling**

- Read product labels carefully.
- Use gloves, goggles and respirators as directed
- Keep materials away from children and pets
- Never mix products

### **Guidelines for the Disposal of Household Chemicals in Pennsylvania**

- Don't dispose of household chemicals by dumping them down the drain. This could cause problems for municipal sewage treatment plants or damage private septic systems
- Buy only enough product for the job

- Recycle materials whenever possible. The Pennsylvania Recycling Hotline is 1-800-890-7745
- In Pennsylvania the disposal of household chemicals into landfills is permissible under certain conditions. This should only be considered as a last resort.
- **Motor Vehicle Batteries** – should be traded in when purchasing a new one. Pennsylvania law requires dealers to accept old batteries in trade.
- **Motor Oil** – many repair shops and auto parts stores recycle used motor oil. If motor oil must be disposed with household trash make sure it's first absorbed by sand, cat litter, saw dust or another absorbent material before placing in a leak resistant container.
- **Paint** – open cans in a well ventilated area and let water based paint evaporate. Place the lid back on the can as the remaining solid residue can be put in the trash. Oil based paint will not evaporate it must be absorbed by sand, kitty litter, saw dust or another absorbent material before placing in a leak resistant container.
- **Fluorescent & Halogen Light Bulbs** – check to see if the store you purchased the florescent or halogen light bulbs from has a recycling program; otherwise double bag the old bulbs and place them in the trash. If you accidentally break a bulb which contains mercury, open the window and leave the room. After a few minutes re-enter, clean the broken bulb, double bag it and place it in the trash (preferably outside).
- **Mercury Thermometers** – call the PA Department of Environmental Protection for recycling information at (570) 327-3636 otherwise double bag the thermometer and pack it in a coffee can with shock absorbing material and tightly seal the lid with duct tape and place in the trash.
- **Medicine** – it is not recommended that medicine be flushed down the toilet, instead mix with used kitty litter or coffee grinds before disposal with household trash.
- **Electronics** – Check with your local municipality or trash company for the availability of a recycling program otherwise keep old TV's and computers at home. Wait for an electronics recycling program to be advertised on the TV or in the newspaper. They usually occur a couple times a year, somewhere in the region within a reasonable driving distance.

## References

Emergency Management Institute Course IS-55 [www.training.fema.gov/IS/crslist.asp](http://www.training.fema.gov/IS/crslist.asp)

Pennsylvania Department of Environmental Protection Web Site [www.dep.state.pa.us](http://www.dep.state.pa.us)