Safer Household Products

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Agenda

• Toxics found in
  – Kitchen
  – Living & bed rooms
  – Bathroom
  – Outdoors
• Where are they found?
• Why are they a concern?
• Ways to limit our and the environment’s exposure
Areas of Concern

- There are 30 areas of concern in the US Great Lakes
- These are places where chemical contamination of sediments from the lakes has seriously endangered the quality of life for people and wildlife
- There are 6 AOCs in NYS
  - Buffalo River
  - EighteenMile Creek
  - Niagara River
  - Oswego River/Harbor
  - Rochester Embayment
  - St. Lawrence River at Massena

"Safer Chemicals Healthy Families." *Failing the Great Lakes.* (2009)
### Beneficial Use Impairments

<table>
<thead>
<tr>
<th>Buffalo Area</th>
<th>Syracuse Area</th>
<th>Rochester Area</th>
<th>Massena Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffalo River</strong></td>
<td><strong>Oswego River/ Harbor</strong></td>
<td><strong>Rochester Embayment</strong></td>
<td><strong>St. Lawrence River</strong></td>
</tr>
<tr>
<td>1. Restrictions on fish and wildlife consumption</td>
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</tr>
<tr>
<td>2. Fish tumors or other deformities</td>
<td>2. Degradation of fish and wildlife populations</td>
<td>2. Eutrophication or undesirable algae</td>
<td>2. Loss of fish and wildlife consumption</td>
</tr>
<tr>
<td>3. Degradation of aesthetics</td>
<td>3. Loss of fish and wildlife habitat</td>
<td>3. Restrictions on drinking water consumption, or taste and odor</td>
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</tr>
<tr>
<td>5. Restriction on dredging activities</td>
<td>5. Loss of fish and wildlife habitat</td>
<td>5. Beach closings</td>
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<tr>
<td><strong>Eighteen Mile Creek</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Restrictions on fish and wildlife consumption</td>
<td></td>
<td>7. Bird or animal deformities or reproduction problems</td>
<td></td>
</tr>
<tr>
<td>2. Degradation of benthos</td>
<td></td>
<td>8. Added costs to agriculture or industry</td>
<td></td>
</tr>
<tr>
<td>3. Restriction on dredging activities</td>
<td></td>
<td>9. Degradation of benthos</td>
<td></td>
</tr>
<tr>
<td><strong>Niagara River</strong></td>
<td></td>
<td>10. Degradation of phytoplankton and zooplankton populations</td>
<td></td>
</tr>
<tr>
<td>1. Restrictions on fish and wildlife consumption</td>
<td></td>
<td>11. Restriction on dredging activities</td>
<td></td>
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<tr>
<td>2. Fish tumors or other deformities</td>
<td></td>
<td>12. Loss of fish and wildlife habitat</td>
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<tr>
<td>3. Degradation of benthos</td>
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<td>4. Restriction on dredging activities</td>
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<td>5. Loss of fish and wildlife habitat</td>
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</table>

Household Toxics


Funding provided by the US Environmental Protection Agency Great Lakes Restoration Initiative in the amount of $104,192 and by the NYS Pollution Prevention Institute through a grant from the NYS Department of Environmental Conservation.
Health Effects

ACUTE occur with a single, short term exposure
CHRONIC occur over time due to repeated exposures

- Acute & chronic effects are very different from each other
- Your body typically can recover from acute effects; not the case with chronic effects
- Acute effects typically go away when exposure stops; not always true with chronic effects
Degree of Hazards

Hazard level is dependent on three things:

**NATURE** of material

**INTENSITY** of exposure - How much are you exposed to?

**DURATION** of exposure - How long are you exposed to it?
Endocrine Disruption

Disruption of the endocrine system can occur in various ways

1. MIMIC a natural hormone
   - Fools the body into over-responding (e.g. growth hormone that results in increased muscle mass)
   - Fools the body to respond at inappropriate times (e.g. producing insulin when not needed)

2. BLOCK the effects of hormones
   - For example, blocks growth hormones required for normal development

3. DIRECTLY STIMULATE or INHIBIT the endocrine system
   - Causes an overproduction or underproduction of hormones (e.g. an over- or under-active thyroid)

Exposure linked to:
- learning disabilities
- severe attention deficit disorder
- cognitive and brain development problems
- deformations of the body
- sexual development problems
- feminizing of males, masculine effects on females


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Kitchen

- cookware
- food storage
- cleaners
# Deciphering Plastics

## PREFERRED

<table>
<thead>
<tr>
<th>Plastic Type</th>
<th>Description</th>
<th>Recycling Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PETE (Polyethylene terephthalate)</td>
<td>Soft drink &amp; water bottles, detergent and cleaning containers, peanut butter jars</td>
<td>Recyclable</td>
</tr>
<tr>
<td>HDPE (High density polyethylene)</td>
<td>Milk &amp; water jugs, shampoo bottles, some plastic bags</td>
<td>Recyclable</td>
</tr>
<tr>
<td>LDPE (Low density polyethylene)</td>
<td>Food storage, soft and pliable parts, most plastic wraps, some bottles</td>
<td>Recyclable</td>
</tr>
<tr>
<td>PP (Polypropylene)</td>
<td>Reusable microwaveable containers, deli soup, syrup, yogurt, margarine containers, disposable diapers, clouded plastic containers, baby bottles</td>
<td>Recyclable</td>
</tr>
</tbody>
</table>

## AVOID

<table>
<thead>
<tr>
<th>Plastic Type</th>
<th>Description</th>
<th>Recycling Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC (Polyvinyl chloride)</td>
<td>Cosmetics, pacifiers, shower curtains, teething rings, soft toys, portable electronics, detergent &amp; window cleaner bottles, flooring</td>
<td>Can leach phthalates and lead Not recyclable Creates toxic dioxin during manufacture and disposal</td>
</tr>
<tr>
<td>PS (Polystyrene)</td>
<td>Packing peanuts, disposable cups, plates, plasticware, Styrofoam, CD cases</td>
<td>Can leach styrene Recyclable, but rarely recycled Most end up in landfills</td>
</tr>
</tbody>
</table>

## UNCERTAIN

<table>
<thead>
<tr>
<th>Plastic Type</th>
<th>Description</th>
<th>Recycling Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC (Polycarbonate)</td>
<td>Reusable water bottles, baby bottles, electronics, canned food</td>
<td>Can leach bisphenol-A, not recyclable Not recyclable, can be composted</td>
</tr>
<tr>
<td>PLA (Polylactic acid)</td>
<td>Disposable cups</td>
<td>Recyclable, but rarely recycled Most end up in landfills</td>
</tr>
</tbody>
</table>

**Funding provided by the US Environmental Protection Agency Great Lakes Restoration Initiative in the amount of $104,192 and by the NYS Pollution Prevention Institute through a grant from the NYS Department of Environmental Conservation.**
THE FIVE GyRES

ALTHOUGH NOT WIDELY DISCUSSED THERE ARE IN FACT 5 MAIN GyRES IN THE WORLD’S OCEANS AND SEVERAL SMALLER GyRES THROUGHOUT ALASKA AND ANTARCTICA. THE MOST COMMONLY DISCUSSED GyRE IS THE NORTH PACIFIC GyRE, KNOWN AS THE GARBAGE PATCH DUE TO THE MASS OF MARINE DEBRIS THAT HAS COLLECTED THERE.

A Gyre

A gyre is a place where currents meet and form a whirlpool type system - this forms a meeting place for ocean debris. Millions of tiny and large pieces of plastics accumulate here, due to the currents they remain trapped here, breaking down over time to become smaller and smaller pieces of plastic until they eventually become plastic dust. This ‘dust’ will never go away but will instead stay in the ocean accumulating toxins and working its way into the food chain as more animals digest these invisible and dangerous items of plastic waste.

107 plastic pieces were found in 134 feet of a southern beach in Bermuda.

10-11% of the plastic in the ocean is less than a mm.

Plastic will remain out at sea for 1000’s of years.

Ocean Pollution affects at least 337 species worldwide.

42% of ocean pollution is plastic.

90-95% of ocean pollution is plastic.

Plastic in sea is an environmental and potential human health hazard.

5 Gyres

THE NORTH PACIFIC GYRE

THE NORTH PACIFIC GYRE IS TURBULENT DUE TO THE EFFECTS OF THE KUJIRA WHALE, THE COLD JAPANESE CURRENT AND THE HAWAII CURRENT, TOGETHER THEY ARE ALL PUSHING THE PLASTIC IN THIS AREA.

1 million sea birds & 100,000 mammals & sea turtles die from plastic pollution every year.

20% of plastic pollution comes from ships.

A typical 2,600 passenger cruise ship produces over eight tons of solid waste, much of which ends up in the oceans.

The 5 Gyres Institute, http://5gyres.org/
Polystyrene

Styrene can leach from polystyrene, especially when hot. Over the long term, this can act as a neurotoxin.

Studies on animals report harmful effects of styrene on red-blood cells, the liver, kidney, and stomach organs.

Styrene can be absorbed by food, and once ingested can be stored in body fat. It is thought that repeated exposure can cause it to build up in the body.

Polystyrene

- Styrofoam®
- Disposable plates & utensils
- Foam take out cups & containers
- Foam meat trays & egg cartons
- Yogurt cups & other opaque single serve containers

Polystyrene free alternatives:
- Reusable cups, plates, and utensils
- Wax lined paper cups & take out containers
- “eco” containers
- LDPE & PET single serve containers
Polycarbonate & BPA

Bisphenol-A – found in some polycarbonate shatter resistant plastics

- May be found in: metal can linings, sippy cups, food storage, thermal receipt paper, other hard plastic
- Water soluble
- Heating a container increases BPA leaching into liquid
- Endocrine disruptor
  - Linked to down’s syndrome, obesity, hyperactivity, breast & prostate cancer
  - Causes breast cancer, testicular cancer, and diabetes in laboratory animals at low doses
- Toxic to aquatic environment
- Baby bottles containing BPA banned in Canada, NYS, others

Actions you can take

- Avoid plastic with #7, OTHER, or PC identification for storing foods and drinks and for toys that children put in their mouth
- Avoid heating drinks or food in PC plastic
- Avoid using strong cleaners on PC containers as they release BPA from the plastic
- Choose products labeled “BPA free”
- Call toll free number on product to contact manufacturer and ask about presence of BPA
• BPA is used in the epoxy lining of most canned foods to prevent the food from interacting with the can
• Safe dose is 50 micrograms/kg body weight/day
  – So, 150 pound person can safely consume 3,400 micrograms/day
• 2010 study of 50 canned foods across the US
  – 96% contained BPA, ranged from 0.07-142 micrograms

The amount of BPA in canned goods cannot be predicted by age, price, quality, nutritional value, the store it was purchased in, the part of the country it was purchased in, or the batch number.¹

BPA free Canned Food Alternatives

✓ Choose fresh foods when possible, followed by dried or frozen products over canned goods
✓ Choose products in glass jars or aseptic boxes (TetraPaks)
✓ Choose products in less toxic plastics
✓ Food in cans marked “BPA free” may contain BPS or BPF - both are endocrine disruptors
Children are Vulnerable

**Children are at higher risk of suffering effects than adults**

1. Children have a heightened sensitivity as their bodies are growing and developing
2. Children have greater pound-for-pound intake of air, water, and food
3. Children’s skin is 30% thinner than adults’ & can absorb more from the skin’s surface
4. Children don’t have the same ability to excrete toxins
5. The blood brain barrier that helps block chemicals from penetrating the brain isn’t fully developed until 6 months of age
6. Children have more years of future life left
7. Children spend more time close to the ground
8. Children have a tendency to put things in their mouth

USEPA, Office of Children's Health Protection, [http://www.epa.gov/aboutepa/ochp.html](http://www.epa.gov/aboutepa/ochp.html)
Landrigan, et. al., Assessing the Effects of Endocrine Disruptors in the National Children’s Study, Environmental Health Perspectives, 111:13, October 2003.
### Actions you can take to Avoid BPA

<table>
<thead>
<tr>
<th>Use</th>
<th>Good</th>
<th>Better</th>
</tr>
</thead>
</table>
| Baby bottles, children’s beverage containers, food storage containers | Hand wash baby bottles & beverage containers, do not wash in the dishwasher  
Do not use containers marked #7 for children’s food & drink  
Do not store hot liquids in plastic bottles & containers  
Do not clean plastic with bleach  
Replace plastic bottles & containers when they start to degrade  
Do not allow children to chew on plastic containers | Replace polycarbonate containers (#7) with PETE (#1), PET (#5), or PE (#2 & #4)  
Choose unlined stainless steel containers, such as water bottles or food storage containers (some metal containers are lined with epoxy resins that may contain BPA, so choose wisely)  
Choose glass baby or water bottles - many on the market have silicone sleeves to reduce the chance of breaking  
Choose glass food storage containers |
| Reheating foods                                                      | Make sure microwaved food doesn’t come into contact with plastic wrap | Do not microwave food covered in plastic wrap |
| Canned foods                                                        | Limit the amount of canned foods you consume each day  
Avoid purchasing canned acidic foods  
Choose products packaged in less toxic plastics, such as PETE (#1), PET (#5), or PE (#2 & #4) | Choose fresh foods when possible  
Purchase food in glass, aseptic boxes or frozen vegetables in plastic bags |

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Cookware & Perfluorochemicals

- Family of manmade chemicals that have been used for decades to make products that resist heat, oil, stains, grease and water

Household products containing PFCs:

- Non-stick pans
- Furniture
- Cosmetics
- Household cleaners
- Clothing
- Packaged food containers

**Teflon® & Perfluorooctanoic Acid**

- Teflon® coated pans contain trace amounts of PFOA
- Most non stick pans are Teflon® coated
- PFOA may be emitted from the pan as it’s heated
- Not completely understood how the general population is exposed to PFOA
- PFOA
  - Does not break down in the environment & is toxic & carcinogenic to animals
  - Is found at very low levels both in the environment and in the blood of the general U.S. population
  - Remains in people for a very long time
  - Causes developmental and other adverse effects in laboratory animals, including affects on the liver, kidneys, and hormones

US EPA, Perfluorooctanoic Acid and Fluorinated Telomers, http://www.epa.gov/oppt/pfoa/
PFOA

- Other studies have linked PFOA to
  - Increased infertility and decreased semen quality
  - Increased occurrence of thyroid disease
  - Higher total cholesterol level
  - Increased risk of attention deficit hyperactivity disorder (ADHD) in a study of US children aged 12–15
  - Earlier and later onset of puberty in girls
  - Signs of reduced fetal growth including lower birth weight

- Industry & EPA continue to study the potential health effects of PFOA

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Reducing Exposure to PFOA

• PFOA is formed as an unintended byproduct in the production of fluorotelomer products, which are used in grease proof food papers since they prevent oil from penetrating the paper
  – Microwave popcorn bags
  – Fast food wrappers
  – Candy wrappers
  – Pizza box liners

Actions you can take

❌ Avoid overheating nonstick pans
❌ Avoid burning food in nonstick pans
✔ Choose non-reactive cookware and cooking utensils
✔ Replace your everyday cookware with safer cookware

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# Alternative Cookware

<table>
<thead>
<tr>
<th>Material</th>
<th>Cooking Ability</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Lightweight</td>
<td>1-2mg of aluminum dissolves into food while cooking, 50mg/day is acceptable</td>
</tr>
<tr>
<td></td>
<td>Conducts heat well</td>
<td>Dissolves most easily from worn or pitted pots and pans &amp; leafy vegetables</td>
</tr>
<tr>
<td></td>
<td>Fairly inexpensive</td>
<td>Acidic foods, such as tomatoes and citrus products, absorb the most aluminum.</td>
</tr>
<tr>
<td>Anodized aluminum</td>
<td>conducts heat as well as ordinary aluminum has hard, non-stick surface which makes it scratch-resistant, durable, and easy to clean</td>
<td>Anodizing reduces aluminum leaching and getting into food</td>
</tr>
<tr>
<td>Ceramic, enamel or glass</td>
<td>easily cleaned and can be heated to fairly high temperatures</td>
<td>Minimal concern from pigments, lead, or cadmium used in making, glazing, or decorating them but risk of them entering food is controlled during the manufacturing process</td>
</tr>
<tr>
<td>Silicone</td>
<td>non-stick</td>
<td>synthetic rubber which contains bonded silicon and oxygen. There are no known health hazards</td>
</tr>
<tr>
<td></td>
<td>stain-resistant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cools quickly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tolerates extreme temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flexible, may not be suitable for some foods it will melt if exposed to high temperatures (&gt;428°F)</td>
<td></td>
</tr>
<tr>
<td>Stainless steel</td>
<td>strong and resists wear and tear</td>
<td>Contains iron, nickel, and chromium – Provides less than 20% of total daily iron intake - well within safe levels</td>
</tr>
<tr>
<td></td>
<td>inexpensive</td>
<td>Does not add significant amounts of nickel to food 45 micrograms of chromium dissolves into food while cooking, safe intake is 50 to 200 micrograms/day</td>
</tr>
<tr>
<td></td>
<td>long-lasting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>most popular cookware in North America</td>
<td></td>
</tr>
<tr>
<td>Tempered glass</td>
<td>Scratch resistant</td>
<td>No known health hazards</td>
</tr>
<tr>
<td></td>
<td>Quick change in temperature can cause it to explode</td>
<td></td>
</tr>
</tbody>
</table>
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Kitchen Cleaners

- **Disinfectants** typically contain pesticides quaternary ammonium or phenolic chemicals
  - Very irritating to eyes and skin and will burn your throat
- **Drain cleaners** typically contain lye and sulfuric acid
  - Corrosive & can cause severe skin burns
- **Oven cleaners** typically contain lye
  - Corrosive & can burn the skin and eyes
- **Automatic dishwasher soap** typically contains high levels of phosphorus
  - Phosphorus makes it’s way to water bodies because our water treatment plants can’t remove it
  - Once in the water, it promotes the growth of algae which contributes to beach closings and other water quality issues
  - Can also cause skin irritation or burns

### Actions you can take

- ✖ Avoid cleaners labeled “danger” or “poison”
- ✖ Avoid high phosphate automatic dishwasher soap

- ✔ Replace your disinfectants with vinegar & rinse surfaces after use
- ✔ Use hot water, baking soda & vinegar to unclog drains: pour large kettle full of hot water down the drain, pour in about a half cup baking soda, let sit for 30 minutes, pour about 1 cup vinegar, flush with large kettle of hot water, repeat if necessary
- ✔ Clean your oven with baking soda & water: coat the inside with baking soda, wet with a spray bottle, and let sit overnight; wipe out the next morning

Living & Bed Rooms

- lighting
- foam furniture
- wood furniture
- flooring
Vinyl & Hardwood Flooring

Vinyl flooring is made from PVC (polyvinyl chloride)

– Contains DEHP, a phthalate, that offgasses from the floor
– Difficult to measure amount of phthalates offgassed
– PVC flooring is associated with increased levels of phthalates in house dust

Hardwood

– Choose sustainable woods, such as cork or bamboo
– Avoid flooring coated or sealed with formaldehyde-based chemicals (emit VOCs), or polyurethane (contains diisocyanates, which cause or aggravate asthma)

When choosing flooring, talk to your contractor/retailer about the safety of

– The flooring material
– Any sealants, adhesives, or other chemicals used


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Carpet

- VOCs are emitted from the carpet and adhesives used during installation
- With good ventilation, **VOC emissions from new carpet typically fall to very low levels within 48 to 72 hours after installation**
- Carpets can harbor pesticides that are brought in with shoes, house dust, and other contaminants

When purchasing carpet, look for
  - Low or no volatile organic compounds (VOCs)
  - No toxic dyes
  - Made from recycled content
  - Sustainably grown/harvested material (i.e. wool carpeting)

- Choose carpet that meets the **Carpet and Rug Institute's (CRI) Green Label/Green Label Plus (GLP)** requirements
- Carpet America Recovery Effort can provide info and advice on recycling your old carpet

Ruthann A. Rudel, Laura J. Perovich, Endocrine disrupting chemicals in indoor and outdoor air, Atmospheric Environment, Volume 43, Issue 1, January 2009,
Installing Carpet

- Ask the retailer to unroll and air out the carpet in a clean, well-ventilated area before new carpet is installed.
- Consider leaving the house during and immediately after carpet installation or schedule the installation when the space is unoccupied.
- Open doors and windows and increase the amount of fresh air indoors to reduce exposure to most chemicals released from newly installed carpet.
- Use window fans and room air conditioners to exhaust fumes to the outdoors during and after installation.
- Operate ventilation systems during installation, and for 48 to 72 hours after the new carpet is installed.
- Contact the retailer if the carpet has an objectionable odor.
- Once installed, vacuum carpet in high traffic areas twice weekly and areas of low traffic once a week using a HEPA filter.

Furniture, Electronics, & PBDEs

- Polybrominated diphenyl ethers are added to plastics and foam products to make them difficult to burn
- Found in
  - Foam: couch cushions & upholstered furniture, carpet padding
  - Fabrics: upholstered furniture, curtains
  - Electronics: the outer case of TVs, video game consoles, DVD players, computers, etc.
PBDEs Health & Environmental Concerns

• They are not chemically bound to the flame retardant, so they can more easily enter the environment

Human Health Concerns
• PBDEs have been found in house dust
• Animal studies and detection of PBDEs in human tissue, blood, and breast milk raise concern for potential health hazards:
  – Liver toxicity
  – Disruption of thyroid function
  – Developmental toxicity
  – Toxic to the brain
  – Toxic to the reproductive system
  – Neurobehavioral effects in children
• Studies have not shown they cause cancer

Environmental Concerns
• Persistent in the environment & bioaccumulate in the food chain

United States Environmental Protection Agency, PBDEs, [http://www.epa.gov/oppt/pbde/](http://www.epa.gov/oppt/pbde/)
PBDE Exposure

- Ingesting dust may be the largest source of human exposure
- Children’s exposure may be greater than adult’s
- Once absorbed, PBDEs are stored in fat
- We are typically exposed through
  - Aging and wear of consumer products
  - Direct exposure from use

<table>
<thead>
<tr>
<th>Actions you can take</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Vacuum your home regularly with a HEPA filter</td>
</tr>
<tr>
<td>✓ Dust your home regularly</td>
</tr>
<tr>
<td>✓ Inspect and replace foam items when they start to rip, tear, or degrade</td>
</tr>
<tr>
<td>✓ Opt for materials that may not contain PBDEs, like leather, wool, or cotton</td>
</tr>
<tr>
<td>✓ When purchasing electronics, choose from brands that do not or are committed to phasing out PBDEs: Acer, Apple, Eizo Nanao, LG Electronics, Lenovo, Matsushita, Microsoft, Nokia, Phillips, Samsung, Sharp, Sony-Ericsson, and Toshiba</td>
</tr>
</tbody>
</table>

United States Environmental Protection Agency, PBDEs, [http://www.epa.gov/oppt/pbde/](http://www.epa.gov/oppt/pbde/)
Furniture & Formaldehyde

• Volatile organic compounds are used in some wood furniture
  – Formaldehyde is typically in the glue that’s used in particleboard (shelving, cabinets, some furniture), plywood paneling (cabinets, some furniture), and medium density fiberboard (drawer fronts, cabinets, furniture tops)
  – Benzene, xylene and toluene are often used in adhesives, solvents, and finishes

• VOCs are emitted into the air
  – Can irritate the eyes, nose, throat, and skin and people with asthma are more sensitive

Actions you can take

✘ Avoid particleboard & fiberboard furniture

✔ When using particleboard & fiberboard furniture
  ✔ Air it out in a garage for a week before bringing it into your house or ventilate the room it will be used in
  ✔ If it cannot be aired out, avoid spending a lot of time in the room with the furniture for at least a week
CFLs and Mercury

- Compact Fluorescent Light bulbs use about 75% less energy than incandescent bulbs
- Operate differently than incandescent bulbs
- Contain mercury vapor
  - About 4mg per bulb (old thermometers contain about 500mg)
  - Mercury can affect the brain and nervous system
- No risk of mercury being released from a bulb that’s in tact

US EPA, CFLs, [http://www.epa.gov/cfl/](http://www.epa.gov/cfl/)
Prolong the Life of your CFLs

Tips from Energy Star

• **Hold the ballast** (white plastic part) to screw in your CFL, NOT the glass tubing.

• **Keep them on for 15 minutes** or more at a time to maximize the lifetime savings and effectiveness.

• **Only use bulbs labeled as three-way** on three-way sockets.

• **Only use bulbs labeled as dimmable** on dimmer switches.

• **Check with the manufacturer** for compatibility with motion sensors and electric timers as most are not designed to work with CFLs.

• **Place CFLs in open fixtures indoors** as CFLs are sensitive to extreme temperatures. Using them in enclosed fixtures indoors can create a hot environment that reduces the lifetime of your bulbs.

• **Protect bulbs outside** by placing them inside enclosed fixtures outdoors. For colder climates, look at the packaging for optimal operating temperatures.

Broken CFLs

Why is it important to clean up a broken CFL properly?
- When CFLs break, they release mercury vapor into the air
- Vapor can travel through ductwork at home, contaminating air throughout the house
- If you are concerned about exposure to mercury, contact your physician

Before Cleanup
- Have people and pets leave the room.
- Air out the room for 5-10 minutes by opening a window or door to outside.
- Shut off the central forced air heating/air-conditioning system, if you have one.

During Cleanup
- **DO NOT VACUUM.** Vacuuming is not recommended unless broken glass remains after all other cleanup steps have been taken. Vacuuming could spread mercury-containing powder or mercury vapor.
- Be thorough in collecting broken glass and visible powder.
- Place cleanup materials in a sealable container.

After Cleanup
- Promptly place all bulb debris and cleanup materials outdoors in a trash container or protected area until materials can be disposed of properly.
- Avoid leaving any bulb fragments or cleanup materials indoors.
- If practical, continue to air out the room where the bulb was broken and leave the heating/air conditioning system shut off for several hours.

US EPA, Cleaning up a Broken CFL, [http://www.epa.gov/cfl/cflcleanup.html](http://www.epa.gov/cfl/cflcleanup.html)
New Light Bulb Packaging

- Package label will emphasize the bulbs’ brightness measured in lumens, rather than a measurement of watts
- “Lighting Facts” label will be on each package
  - brightness;
  - energy cost;
  - the bulb’s life expectancy;
  - light appearance (“warm” or “cool” light);
  - wattage (amt of energy the bulb uses); and
  - whether the bulb contains mercury.
- Brightness, measured in lumens, and a disclosure for bulbs containing mercury will be printed on each bulb.

**Lighting Facts** Per Bulb

<table>
<thead>
<tr>
<th>Brightness</th>
<th>820 lumens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Yearly Energy Cost $7.23</td>
<td></td>
</tr>
</tbody>
</table>
  - Based on 3 hrs/day, 11g/kWh
  - Cost depends on rates and use
| Life             | 1.4 years |
| Light Appearance | Warm      |
  - Cool |
  - 2700 K
| Energy Used      | 60 watts   |

**Lighting Facts** Per Bulb

<table>
<thead>
<tr>
<th>Brightness</th>
<th>870 lumens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Yearly Energy Cost $1.57</td>
<td></td>
</tr>
</tbody>
</table>
  - Based on 3 hrs/day, 11g/kWh
  - Cost depends on rates and use
| Life             | 5.5 years |
| Light Appearance | Warm      |
  - Cool |
  - 2700 K
| Energy Used      | 13 watts   |
| Contains Mercury | For more on clean up and safe disposal, visit epa.gov/cfl.|

How to Get Rid of CFLs

• When CFLs are thrown in your garbage, mercury ends up in the environment
• Multiple ways to recycle CFLs
  – Some retailers collect & recycle them for free: Ace Hardware, Home Depot, Lowe’s, True Value
  – Some bulb manufacturers have free prelabeled mailing kits to send them back
  – Local household hazardous waste collection sites may accept them
Bathroom

- Shower curtain
- Personal care products
- Cleaners

Funding provided by the US Environmental Protection Agency Great Lakes Restoration Initiative in the amount of $104,192 and by the NYS Pollution Prevention Institute through a grant from the NYS Department of Environmental Conservation.
Bathroom Cleaners

- **Toilet cleaners** typically contain hydrochloric acid and bleach
  - Very irritating to eyes and skin, can burn your throat
- **Mold and mildew removers** typically contain fungicides – chlorine & alkyl ammonium chloride
  - Caustic and may cause breathing problems
- **Antibacterial cleaners** contain pesticides
  - Very irritating to eyes and skin and will burn your throat
- **Air fresheners** typically contain formaldehyde, petroleum distillate, p-dichlorobenzene, and aerosol propellants
  - Flammable, irritate eyes, skin, and throat

### Actions you can take

- **✗** Avoid cleaners labeled “danger” or “poison”
- ✗ Use vinegar to clean your toilet: flush the toilet to allow the water level to go down, pour undiluted vinegar around the inside of the rim & scrub down the bowl, flush to rinse
- ✗ Replace your antibacterial cleaners with vinegar & be sure to rinse surfaces after use
- ✗ To control mold, use exhaust fans or open windows when showering, dry wet areas within 24 to 48 hours, fix leaks, and don’t install carpet near water sources or areas where there moisture
- ✗ Use baking soda and liquid soap to clean tubs and showers
- ✗ Use baking soda to absorb odors

US EPA, Learn about chemicals around your home: Bathroom, [http://www.epa.gov/kidshometour/bath.htm#view](http://www.epa.gov/kidshometour/bath.htm#view)
US EPA, Green Building, Bathrooms [http://www.epa.gov/greenhomes/bathroom.htm](http://www.epa.gov/greenhomes/bathroom.htm)
Shower Curtains

- Many plastic shower curtains are made out of PVC
  - PVC contains toxic phthalates that are known endocrine disruptors
  - New shower curtain smell is the phthalates coming out of the plastic and into the air

- Alternatives
  - Plastic curtains made from safer plastics, such as polypropylene, polyethylene, EVA, and PEVA
    - Cost about the same as PVC curtain
  - Fabric curtains, similar to hotels, keep water in the tub and can be washed
    - May cost more, but can be used longer than PVC curtain
    - Hemp is naturally mildew resistant
    - Choose organic fabrics to avoid potentially formaldehyde emitting chemicals that are used to make fabric shower curtains waterproof
Personal Care Products (PCPs)

- **Cleansing**: soap, body wash, shampoo, conditioner, bubble bath, toothpaste, mouthwash, etc.
- **Hair styling**: spray gel, pomade, etc.
- **Shaving**: cream, gel
- **Moisturizing**: face & body lotion
- **Nail**: polish, remover
- **Perfume**, cologne, body spray, etc.
- **Deodorant and antiperspirant**
- **Cosmetics**: foundation, concealer, mascara, eyeshadow, eyeliner, lipstick, lip gloss, etc.
PCP Safety in the US

- Personal care products & cosmetics are regulated by the FDA
- Cosmetics & ingredients are not tested by the FDA before sale
  - US: 11 chemicals banned/limited
  - Europe: 1,100 chemicals banned/limited
- Companies responsible for ensuring the safety of products before they go to market
- FDA does not have authority to recall products containing a toxic chemical

Ingredients Prohibited & Restricted by FDA Regulations, [http://www.fda.gov/Cosmetics/ProductsandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm](http://www.fda.gov/Cosmetics/ProductsandIngredientSafety/SelectedCosmeticIngredients/ucm127406.htm)

Potential Health & Environmental Effects

Personal care product ingredients may have or be linked to one or more of the following effects:

- **Irritate eyes & skin**
- **Bioaccumulate** (build up in the food chain)
- **Toxic to fish** or other animals
- **Cause endocrine disruption**
- **Cancer**
**Ingredients of Concern in PCPs**

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Ingredients of Concern</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>water based products</strong></td>
<td>methyl, ethyl, propyl, butyl parabens</td>
<td><strong>Linked to</strong> cancer and may be toxic to the endocrine, reproductive, immune, and nervous systems</td>
</tr>
<tr>
<td><strong>scented products</strong></td>
<td>fragrance, phthalates, musk</td>
<td><strong>Linked to</strong> diabetes and asthma, potential risks to reproductive system &amp; thyroid, builds up in the food chain</td>
</tr>
<tr>
<td><strong>antibacterial products</strong></td>
<td>triclosan</td>
<td><strong>Linked to</strong> thyroid function and emergence of bacteria resistant to antibacterial products, may be toxic to the endocrine system</td>
</tr>
<tr>
<td><strong>pH balanced products</strong></td>
<td>triethanolamine</td>
<td><strong>Linked to</strong> allergic skin reactions; may be toxic to the immune and respiratory systems and the skin, may be toxic to fish</td>
</tr>
<tr>
<td><strong>products that lather/foam</strong></td>
<td>sodium lauryl sulfate (SLS), sodium laureth sulfate</td>
<td><strong>Linked to</strong> skin &amp; eye irritation</td>
</tr>
<tr>
<td><strong>nail polish</strong></td>
<td>toluene, formaldehyde, dibutyl phthalate</td>
<td><strong>Linked to</strong> reproductive &amp; developmental effects; headaches; dizziness; fatigue; irritates the eyes, nose, throat, &amp; skin; formaldehyde is a known carcinogen</td>
</tr>
<tr>
<td><strong>antiperspirant/deodorant</strong></td>
<td>Aluminum Zirconium Tetrachlorohydrex GLY</td>
<td><strong>Research suggests</strong> that aluminum-based compounds may be absorbed by the skin and may contribute to breast cancer</td>
</tr>
</tbody>
</table>
Eco Friendly Products

- The use of most eco friendly terms are not defined or regulated
- Third party certifications (someone other than the company) are preferable
- Just because a product or ingredient is ‘organic’, doesn’t mean it’s safe!

<table>
<thead>
<tr>
<th>Unregulated terms</th>
<th>Preferable terms &amp; labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Toxic</td>
<td>USDA Organic Label</td>
</tr>
<tr>
<td>Natural</td>
<td></td>
</tr>
</tbody>
</table>
Outside Your Home

- fertilizers
- pesticides
- watering
- mowing

Funding provided by the US Environmental Protection Agency Great Lakes Restoration Initiative in the amount of $104,192 and by the NYS Pollution Prevention Institute through a grant from the NYS Department of Environmental Conservation.
Ten Tips to Protect the Outdoor Environment

1. Maintain natural vegetation in filter areas or swales, especially along streams.
2. Mow high; mulch grass clippings.
3. Compost or mulch leaves and yard debris.
4. Do not overuse or misapply fertilizers onto sidewalks and paved areas.
5. Direct downspouts away from driveways or storm drains.
7. Sweep up litter and debris from driveways and parking lots rather than hosing debris into storm drains.
8. Use proper herbicide and pesticide notification signs and let your neighbors know. See www.monroecounty.gov (click on Public Health) or call 753-PEST for more information and regulations.
9. Use low or no phosphorus fertilizer and apply in early autumn for best results.
10. Avoid blanket applications of pesticides by treating only affected areas.

Water Education Collaborative, [http://www.h2ohero.org/landing/h2ou2.htm](http://www.h2ohero.org/landing/h2ou2.htm)

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Pesticides & Fertilizers

- Pesticides and fertilizers are often rinsed off the ground when it rains
- They end up in storm sewers
- Water in storm sewers is typically discharged directly to water sources – like Lake Ontario or rivers – without being treated
Common Health Concerns of Pesticides

- Lab studies show that pesticides can cause birth defects, nerve damage, cancer, and other effects that might occur over a long period of time
- Effects depend on toxicity of the pesticide, how much you’re exposed to, and the duration of exposure
- May pose special hazard to children
  - May block the absorption of food nutrients necessary for normal healthy growth
  - If a child's excretory system is not fully developed, the body may not fully remove pesticides
  - May alter the way the biological system operates

Using Pesticides Safely

• Always store pesticides and other household chemicals up high, out of children’s reach, in a **locked cabinet or garden shed**.
  – Installing child-proof safety latches or padlocks on cupboards and cabinets is a good idea.

• **Before applying pesticides—indoors or outdoors—remove** children and their toys, along with any pets and their toys, from the area.
  – Keep them away from the area that has been treated until the pesticide has dried and for at least the length of time recommended on the pesticide label.

• **Never remove labels from containers, and never transfer pesticides to other containers.**
  – Children may mistake them for food or drink.

• Teach children that “**pesticides are poisons**”
  – something they should never touch or eat.

• **Know the poison center telephone number**
  – (1-800-222-1222) near each phone. Have the pesticide container handy when you call.

Non Chemical Pest Management

- Cockroaches, rodents, mosquitoes, and other pests need food, water, and shelter
- Methods to manage pests without chemicals
  - Keep food and food scraps tightly sealed
  - Regularly remove garbage from your home
  - Do not leave pet food and water out overnight
  - Fix leaky plumbing and look for other sources of water, such as trays under house plants
  - Eliminate standing water in rain gutters, buckets, plastic covers, bird baths, fountains, wading pools, potted plant trays, etc
  - Keeping swimming pool water treated and circulating
  - Close off entryways and hiding places (e.g., caulking cracks and crevices around cabinets or baseboards).
  - Ensure window and door screens are "bug tight"
  - Replace outdoor lights with yellow "bug" lights which tend to attract fewer mosquitoes than ordinary lights

Methods to Reduce Water Contamination

- Adjust your sprinklers to prevent overwatering
- Use a commercial car wash or wash your car on the lawn or other nonpaved surface
- Test your soil before you apply fertilizers and use fertilizers and pesticides only when needed
- Dispose of pet waste in the trash rather than leaving it on the lawn to degrade
- Check your cars for leaks and clean up spills or leaks with kitty litter or other absorbents
- Use deicing salts only when needed
- Although not typically done, well water can be tested for pesticides
Reducing Exposure through Food

- Trim fat from meat and poultry because residues of some pesticides concentrate in fat
- Remove the skin from fish
- Rinse fruits and vegetables thoroughly with water & scrub with a brush and peel them, if possible
- Cook or bake foods to reduce residues of some pesticides
- Grow your own food without chemical pesticides
- Do not fish in contaminated water bodies
- Do not pick wild plants that are growing right next to a road, utility right-of-way, or hedgerow between farm fields
Reducing Exposure through Air

Outdoor Air

• Stay indoors when a close neighbor is applying pesticides and keep windows and exterior doors closed.
• If you live near fields, parks, or other areas that receive regular pesticide treatment, consider planting a group of hardy, thick-branched trees or shrubs to help serve as a buffer zone and windbreak.
• Careless application can lead to drift or spraying of areas that don’t need the pesticide. If your property is accidentally sprayed during an aerial pesticide application, call your local, state, or regional pesticide office.

Indoor Air

• **Open doors and windows**, and run overhead, whole-house, or window fans to exchange indoor air for outdoor air after a pesticide is applied indoors.
• If you suspect that the air in your building is contaminated, consult your local or state health department or the National Pesticide Information Center.
Reducing Exposure through Well Water

- Municipal water systems test and treat water periodically for pesticide residues
- Private wells are not typically tested for pesticide residues
- Contact your state or local health department if you have any questions about pesticide or other chemical residues in your well water
- If your well water is analyzed and found to contain pesticide residue levels above established or recommended health standards, use an alternate water source such as bottled water for drinking and cooking
- The safest choice is distilled spring water in glass bottles
Fertilizers & Phosphorus

• Many fertilizers contain significant amounts of nitrogen and phosphorus
  – Contaminate the water, creating excessive algae growth on the surface of the water
  – Leads to water quality issues, including smells & closed beaches

<table>
<thead>
<tr>
<th>Actions you can take</th>
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</thead>
<tbody>
<tr>
<td>✗ Avoid water soluble fertilizers</td>
</tr>
<tr>
<td>✗ Avoid applying fertilizers before it rains</td>
</tr>
<tr>
<td>✓ Use chemical fertilizers sparingly and in strict accordance with directions</td>
</tr>
<tr>
<td>✓ Use compost and other non-toxic alternatives whenever possible</td>
</tr>
<tr>
<td>✓ Use fertilizers that are not water-soluble to prevent them washing away in the rain</td>
</tr>
<tr>
<td>✓ Use “natural organic” or “slow-release” fertilizers</td>
</tr>
<tr>
<td>✓ Apply fertilizers in the fall for better growth and stability in the next year</td>
</tr>
</tbody>
</table>

EPA. Lawn Care 4 min spot. [http://www.youtube.com/watch?v=who0nxEL5b4&feature=related](http://www.youtube.com/watch?v=who0nxEL5b4&feature=related)
EPA. Green Building. Outdoor Area. [http://www.youtube.com/watch?v=who0nxEL5b4&feature=related](http://www.youtube.com/watch?v=who0nxEL5b4&feature=related)
Fertilizer & Pesticide Notification

• **NYSDEC Neighbor Notification Law**
  - Mandates notification of certain commercial lawn applications by visual markers
  - Applies only to Counties that have passed a local law which enforces the Neighbor Notification Law

• **Special Requirements for Commercial Lawn Applications**
  - Any lawn application of more than 100 square feet must be marked appropriately

Watering & Mowing

- Lawns need only about one inch of water a week in summer, including rain, to stay green
  - Less is more – over watering can increase pesticides & fertilizers getting into the sewer and can harm your lawn and plants
  - Over-watering will cause shallow roots, weed growth, disease & fungus

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>✗ Avoid watering the pavement by positioning automatic sprinklers to water the lawn and garden</td>
</tr>
<tr>
<td>✗ Avoid cutting grass too short. Tall grass shades each other and slows down growth.</td>
</tr>
<tr>
<td>✔ Water lawns during the coolest part of the day to prevent water from evaporating</td>
</tr>
<tr>
<td>✔ Consider using gray water or collected water to water plants and grass</td>
</tr>
<tr>
<td>✔ Check for leaks in hoses, sprinklers and faucets regularly</td>
</tr>
<tr>
<td>✔ Mulch your grass to return nutrients to the lawn</td>
</tr>
</tbody>
</table>


EPA. Green Building. Outdoor Area. [http://www.youtube.com/watch?v=who0nxEL5b4&feature=related](http://www.youtube.com/watch?v=who0nxEL5b4&feature=related)
Drive Way Sealer

X Coal tar based
  o Byproduct of coal processing
  o Contains high levels of PAHs
  o Wears off over time
  o Contaminates water, streams, & lakes with PAHs

✓ Asphalt based
  o Made from asphalt cement – the binder in asphalt pavement emulsified with water
  o Do not contain PAHs
  o Do not crack

Polyaromatic Hydrocarbons cause tumors in some fish, disrupt the reproduction of aquatic organisms, & some are known human carcinogens

Alternative Products
  • Sealmaster Concentrated Asphalt Based Pavement Sealer
  • Black Jack CAS-73 Commercial Asphalt Sealer
  • Sakrete Driveway Pro Driveway Sealer
  • Avoid “coal tar” “RT-12” “tar” & similar ingredients


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Summary

- Many household products contain ingredients which may negatively affect the environment and human health
- Consider the safety of ingredients and how the product will be used when selecting household products
- Prioritize replacement of products with high hazards and/or regular use

<table>
<thead>
<tr>
<th>Kitchen</th>
<th>Living &amp; Bed Rooms</th>
<th>Bathroom</th>
<th>Outside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food storage</td>
<td>Furniture</td>
<td>Personal care products</td>
<td>Pesticides</td>
</tr>
<tr>
<td>Cookware</td>
<td>Electronics</td>
<td>Shower curtain</td>
<td>Fertilizers</td>
</tr>
<tr>
<td>Cleaners</td>
<td>Cleaners</td>
<td>Cleaners</td>
<td>Watering</td>
</tr>
<tr>
<td>Lighting</td>
<td>Lighting</td>
<td>Lighting</td>
<td>Mowing</td>
</tr>
<tr>
<td>Flooring</td>
<td>Flooring</td>
<td>Flooring</td>
<td>Yard Maintenance</td>
</tr>
</tbody>
</table>