

# Emerging Contaminants in the Environment

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# Toxicology Section

- Created in 1986 to carry out the Illinois Department of Public Health's responsibilities under the Environmental Toxicology Act
- Cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR)

# Responsibilities

- Evaluate hazardous waste sites
- Assess the health effects of exposure to hazardous substances in the home
- Respond to citizen inquiries
- Identify actions necessary to mitigate or prevent health effects
- Develop health advisories

# Additional Activities

- Education
- Workshops
- Indoor Air Quality
- Methamphetamine Laboratories
- Children's Health
- Fish Advisories

# Emerging Contaminants

- Newly “discovered”
  - Contaminants
  - Issues
- Old becomes new
  - Technology changes
  - Additional research
- New ways of using materials
- Aged materials

# Pharmaceuticals

- Antibiotics, anti-depressants, seizure medication, cancer treatments, etc.
- Disposal?
- Mid-'90s German researcher found 30 of 60 common pharmaceuticals he looked for
- USGS currently conducting assessment of "emerging contaminants" in selected streams
  - Website: [toxics.usgs.gov/regional/emc.html](http://toxics.usgs.gov/regional/emc.html)

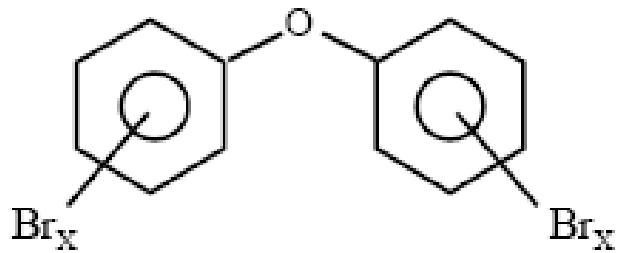
# Impact of Pharmaceuticals

- Mostly unknown
- Aquatic life
- Retired populations
- Arid climates

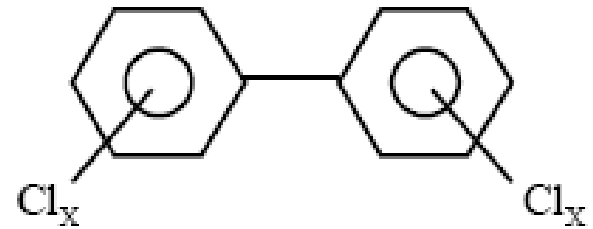
# Polybrominated Diphenyl Ethers (PBDEs)

- Penta: Used in polyurethane foam such as in mattresses, seat cushions, other upholstered furniture and rigid insulation.
- Octa: Used in high-impact plastics such as fax machines and computers, automobile trim, telephones and kitchen appliances.
- Deca: Used in carpet foam pads, draperies, television sets, computers, stereos and other electronics, cable insulation, adhesives, and textile coating.

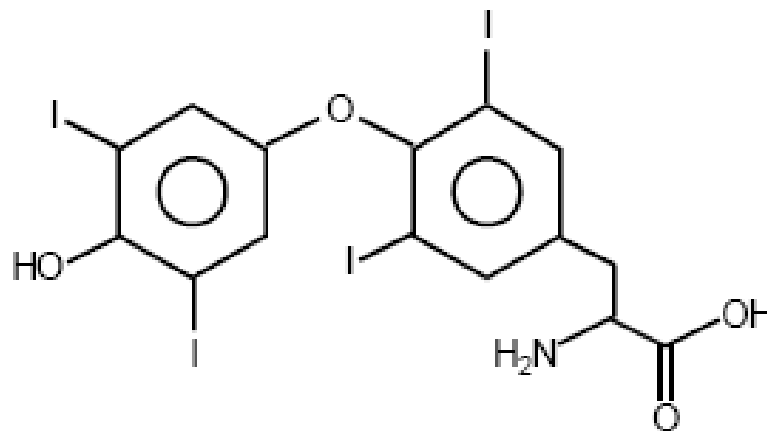




Polybrominated diphenylethers  
(PBDEs)



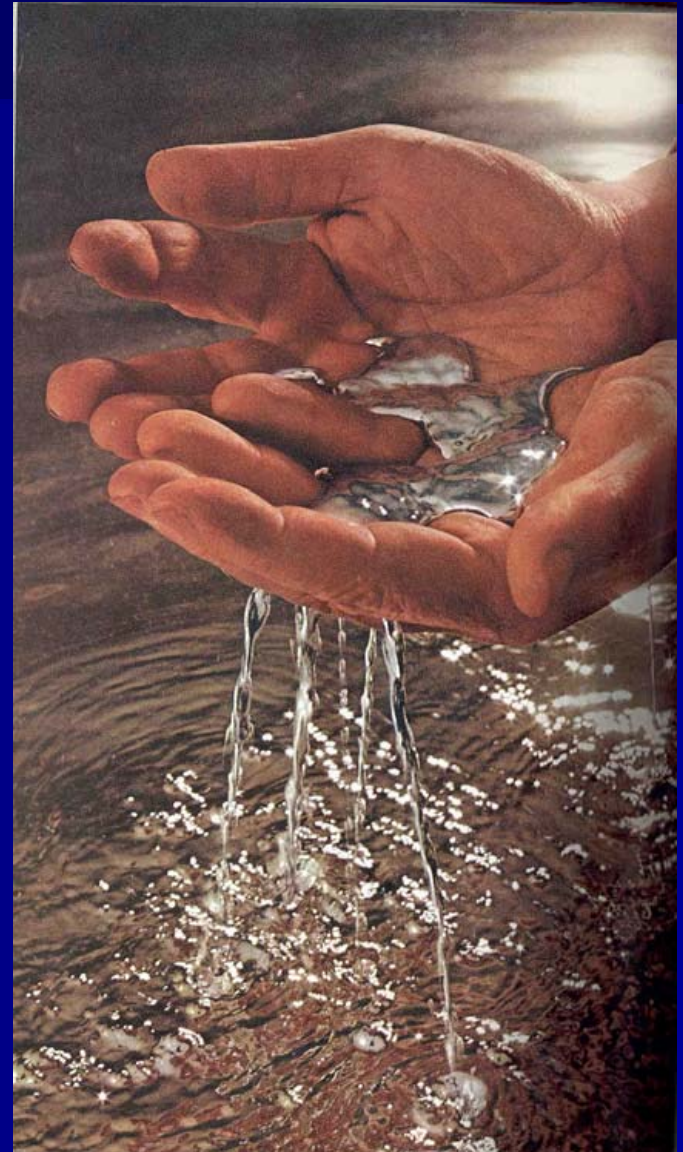
Polychlorinated biphenyls  
(PCBs)



Thyroxine (T4)

# Mercury

- Mad Hatter
- Schools
- Gas Regulators



# Arsenic

- Maximum Contaminant Level reduction
- From 50  $\mu\text{g}/\text{L}$  to 10  $\mu\text{g}/\text{L}$
- March 1999 National Academy of Science Report
- *“Maximizes health risk reduction benefits at a cost that is justified by the benefits”*

# Lead

- Old hazards still present
  - Lead paint
  - Lead in soil
  - Lead in pipes
- New hazards
  - Imported powders
  - New health effects?
    - <http://apnews.excite.com/article/20080127/D8UEEJV00.html>

# Methamphetamine Labs

- Easy “recipe”
- Easily obtainable materials
- Property contamination
- Exposure of children



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# Chemical Storage in Schools

- Better Living Through Chemistry
- Old inherited materials
- Accidents and spills









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