

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

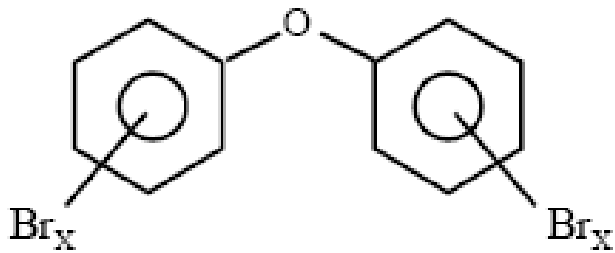
- Antibiotics, anti-depressants, seizure medication, cancer treatments, etc.
- Disposal?
- Mid-'90s German researcher found 30 of 60 common pharmaceuticals he looked for
- USGS currently conducting assessment of "emerging contaminants" in selected streams
 - Website: toxics.usgs.gov/regional/emc.html

Impact of Pharmaceuticals

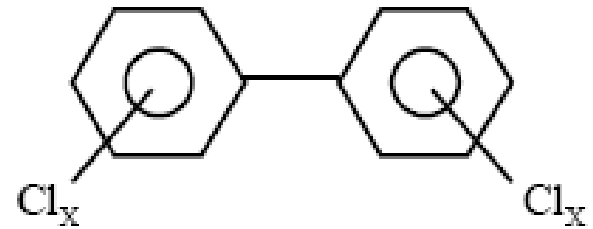
- Mostly unknown
- Aquatic life
- Retired populations
- Arid climates

Polybrominated Diphenyl Ethers (PBDEs)

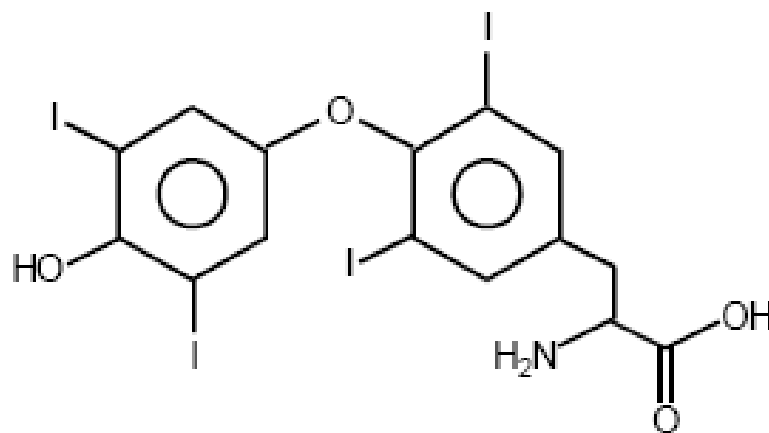
- Penta: Used in polyurethane foam such as in mattresses, seat cushions, other upholstered furniture and rigid insulation.
- Octa: Used in high-impact plastics such as fax machines and computers, automobile trim, telephones and kitchen appliances.
- Deca: Used in carpet foam pads, draperies, television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



Polybrominated diphenylethers
(PBDEs)



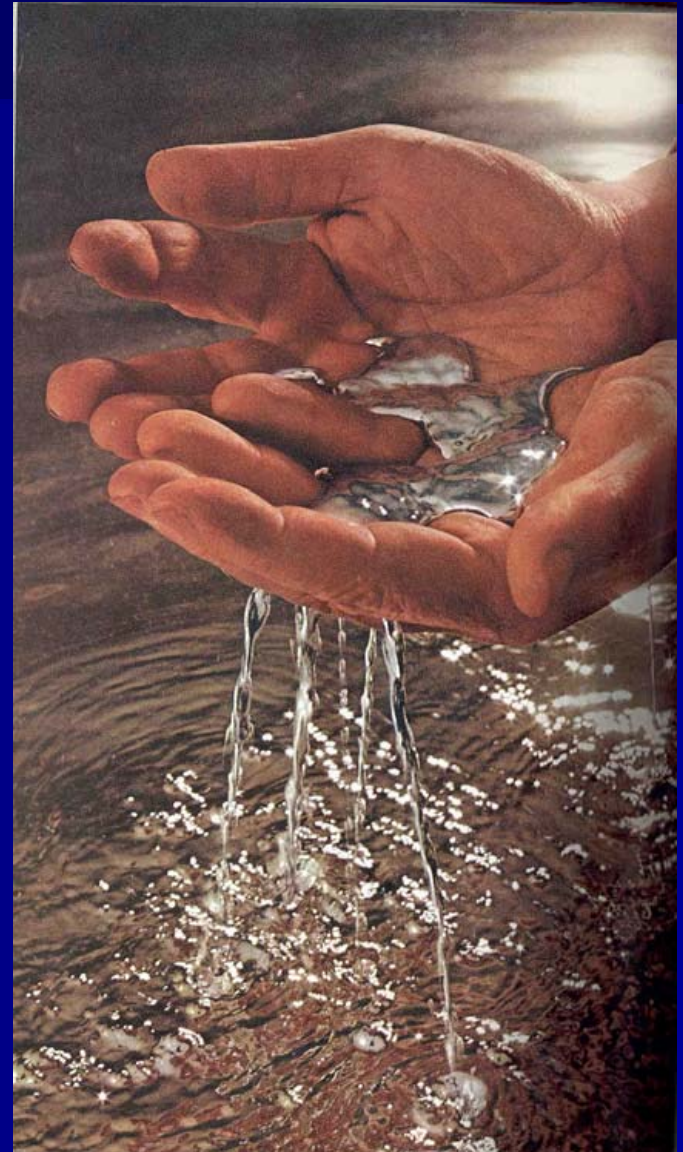
Polychlorinated biphenyls
(PCBs)



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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