



Environmental Impacts of Technology

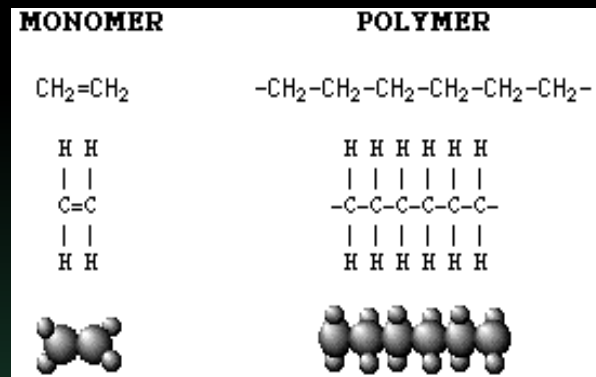
Plastics



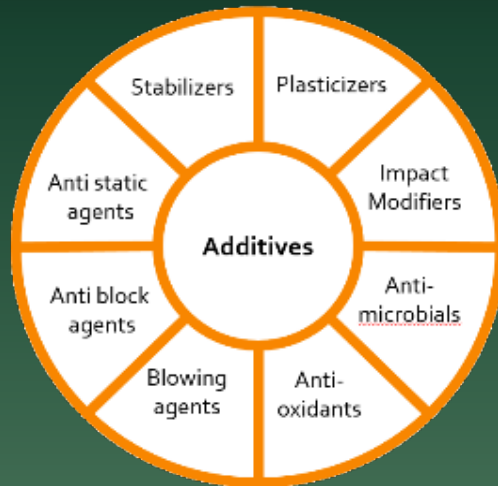
Use

Plastics

Environmental Impact



+



Manufacturing



Use



Disposal

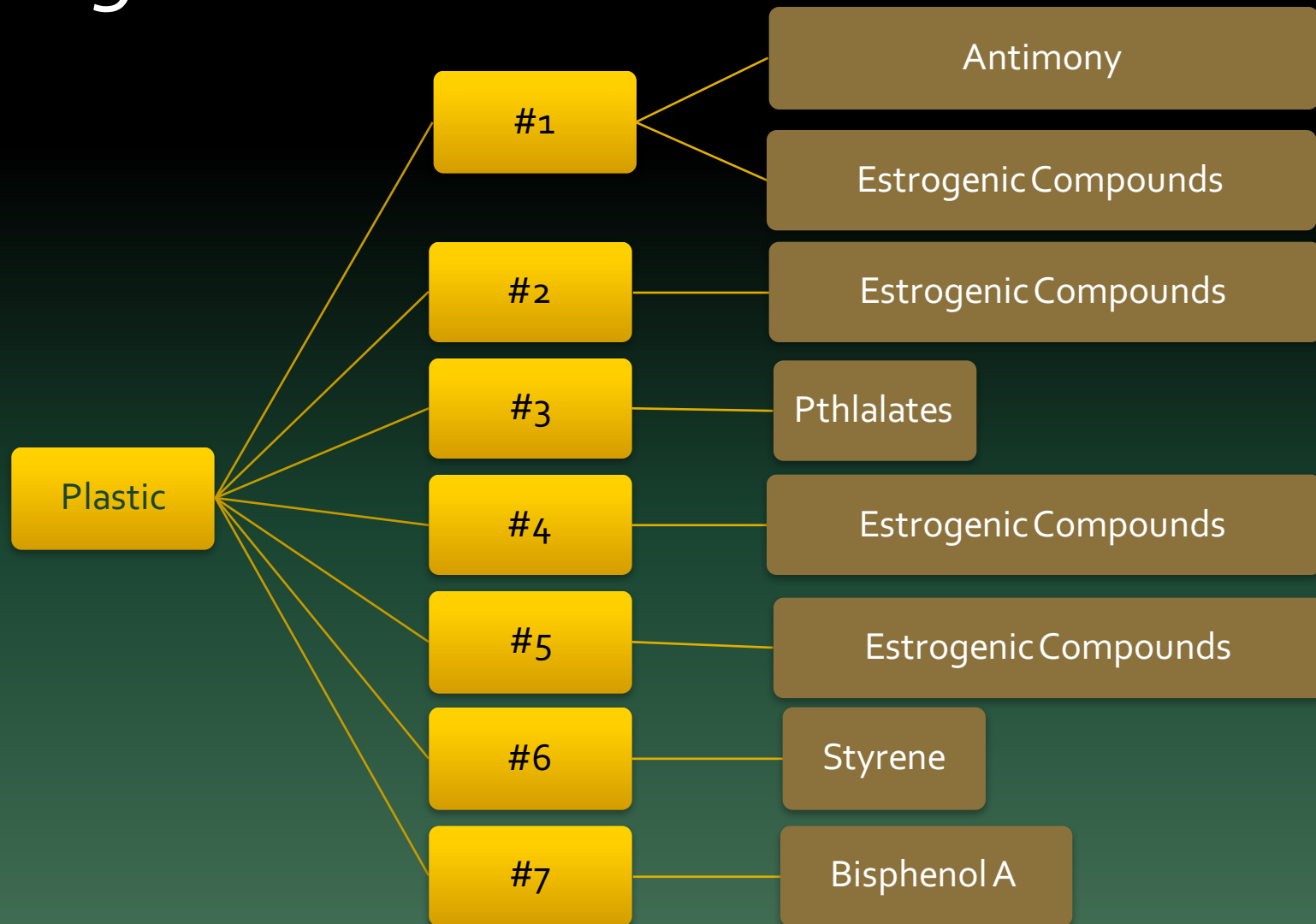


Degradation



Migration

Environmental Impacts of *Using Plastics*



Using Plastics

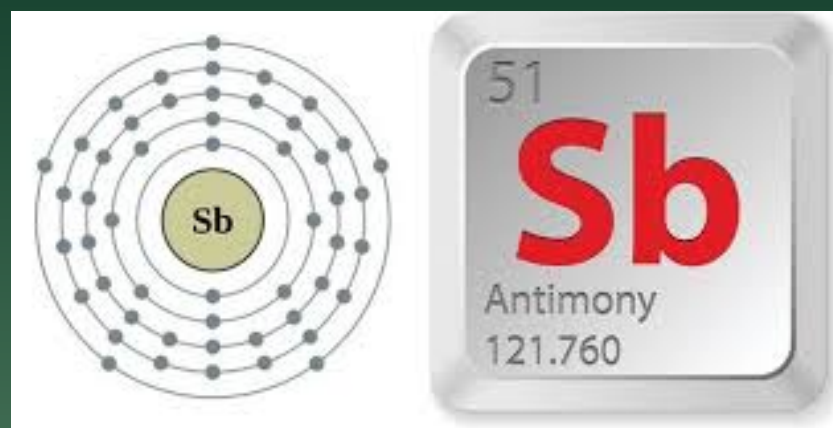
Spotlight on Antimony



Antimony and PET bottles (bottles used for water and similar beverages)

Studies in Canada and Europe have shown that Antimony leaches from bottles made of PET plastic. A 2008 study of plastic water bottles stored at elevated temperatures in Arizona demonstrated Antimony levels at less than one tenth of the maximum contaminant level of 6 parts per billion (ppb) established by the EPA .

Short-term exposure (over days or weeks) to antimony in drinking water (or other beverages) at very high concentrations (above 30 mg/L) can cause nausea, vomiting, and diarrhea. Other health risks from ingesting antimony are also possible.



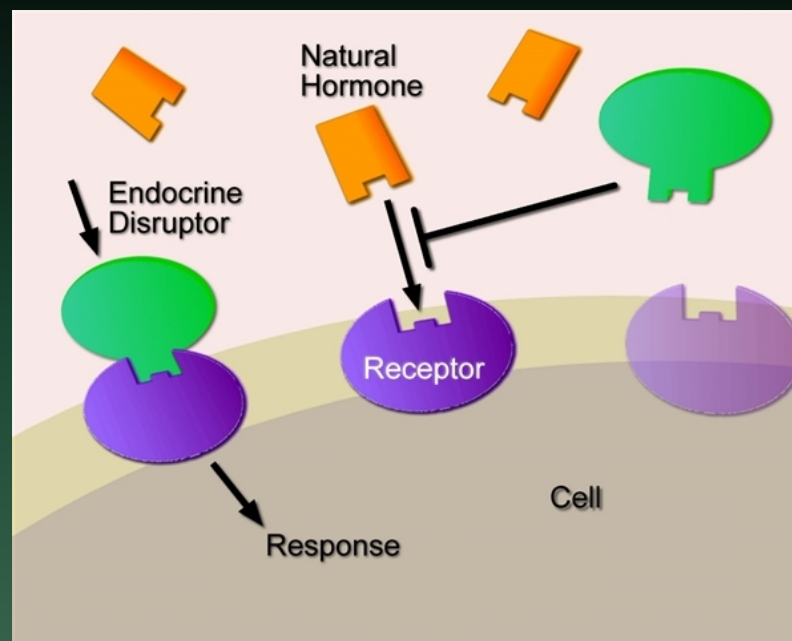
Using Plastics

Spotlight on EA Compounds

Did you know?

The most common endocrine disruptor is one that mimics or antagonizes natural estrogen in the body. These estrogen active (EA) compounds:

- Cause early puberty in females
- Reduce sperm counts in males
- Alter what the reproductive organs can do
- Contribute to obesity
- Increase rates of breast, ovarian, testicular, and prostate cancer



Using Plastics

Spotlight on EA Compounds

Estrogen Active (EA) Endocrine Disruptors in Plastics

Some studies have shown that plastic food and beverage packages do not release EA compounds into the contents of the plastic container. However, when stressed (by contents containing salt or alcohol or by being boiled, exposed to sun or microwaved), other studies have shown that these plastics do indeed release EA compounds and pose a health risk.

PET: Polyethylene terephthalate (plastic water bottles)

HDPE: high density polyethylene

LDPE: low density polyethylene

PP: polypropylene



Using Plastics

Spotlight on Phthalates

Phthalates are endocrine (hormone) disruptors and can act as weak estrogens

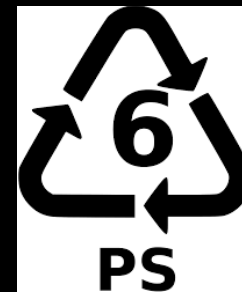
In recent research, phthalates have been linked to asthma, allergies, abnormal hormone levels in infants and children, altered reproductive development, and infertility. Animal studies indicate phthalates may also potentially result in obesity and diabetes. Studies are continuing to investigate threats of phthalate exposure.



Phthalates, often called Plasticizers, are used to make PVC products more flexible.

Using Plastics

Spotlight on Styrenes



Did you know?

Styrene has been classified as a likely carcinogen.

Studies in mice and rats indicate that styrene is a potential carcinogen. High exposure to styrene has also been associated with neurological impairments such as drowsiness, headaches, and balance disturbances.



Styrene is used to make polystyrene and styrofoam products

Using Plastics

Spotlight on Bisphenol A

Bisphenol A is a suspected endocrine (hormone) disrupter in mammals

Although the FDA originally thought that BPA was safe, in 2008 it altered position and announced concern about potential effects on the brain, behavior, and prostate glands in fetuses, infants, and young children. These concerns are largely based on animal studies, and the federal government is currently funding research to more thoroughly investigate BPA risks.



Bisphenol A is used to make polycarbonate products such as plastic water bottles and other drinking containers.

Using Plastics

Impacts on Environment and Health

Plastics that are in contact with food and beverages or are themselves chewed upon can wreak havoc on human and animal health.



A Mixed Bag

What we know:

- Phthalates in PVC products (e.g. toys, nail polish) and Bisphenol A in hard plastics (like polycarbonate water bottles) disrupt the endocrine system and the body's natural hormones.
- Estrogen endocrine disruptors including phthalates and bisphenol A have appeared in many, many different types of plastic containers that are used for food and beverages.
- Some specific chemicals (like styrenes in styrofoam) have serious health effects as well.
- Some chemicals used in plastics also appear relatively harmless.