Safer Products for Washington Keywords



Figure 1. Cans of paint on wooden shelves.

Safer Products for Washington

The Safer Products for Washington program works to reduce harmful chemicals in everyday products sold and distributed in Washington State.

Chemicals are everywhere in our daily lives, from the food we eat to the products we use. Understanding what chemicals are made of helps us appreciate their roles in both natural processes and industrial applications. It's important to note that not all chemicals are harmful; many are essential for life and well-being. For example, water is a chemical essential for life.

Chemicals

A chemical is a substance with a defined composition, composed of atoms and molecules.

Composition of Chemicals

1. **Atoms:** The basic building blocks of all chemicals are atoms. An atom is the smallest unit of an element and consists of a nucleus (containing protons and neutrons) surrounded by electrons. For example, a water molecule (H_2O) is made up of two hydrogen atoms and one oxygen atom bonded together.
2. **Compounds:** A compound is a type of molecule that contains at least two different elements. For instance, table salt (sodium chloride, NaCl) is a compound made of sodium and chlorine atoms bonded together in a fixed ratio.
3. **Molecules:** When two or more atoms bond together, they form a molecule. Molecules can be simple, like O_2 (oxygen gas), or complex, like proteins, which are made up of long chains of amino acids.

4. **Substances:**
   A substance is defined as having a consistent composition. A single element like carbon can be considered a substance. Pure water (H_2O) is also an example of a substance, because it has a consistent composition of two hydrogen atoms and one oxygen atom. In contrast, salt water is not considered a substance because it is a mixture that can have different proportions of water (H_2O) and salt (NaCl).
5. **Mixtures:**
   A mixture is when two or more substances are blended. A mixture can be separated into the individual substances it is comprised of. For example, salt water can be separated into two substances, salt (NaCl) and water (H_2O).

Chemical Traits and Types of Chemicals

6. **Bioaccumulation:** The process of chemicals building up in the bodies of living organisms over time. An example: PCBs that build up in the fatty tissue of fish when they are exposed through what they eat.
7. **Biomimicry:** Imitating natural biological designs and processes in engineering or invention.
8. **Chemical class**: A category of chemicals that share similar properties or behaviors. Chemicals in a class often have shared molecular structures or functional uses.
9. **Exposure:** When a chemical gets into your body. It is the extent to which an individual, population, or ecosystem is exposed to a chemical substance.
10. **Function:** Can be defined as the role a chemical plays in a product. Examples include water repellency, preservative, antioxidant, and solvent.
11. **Green chemistry:** The design of chemical products and processes that reduce or eliminate the use of hazardous substances.
12. **Hazard**: The potential to cause adverse effects. It is the impact that an individual, population, or ecosystem could experience from a chemical substance.
13. **Persistence:** A measure of how easily a chemical breaks down in the environment, or the bodies of people and other organisms.
14. **Polymers:** Large molecules made up of smaller molecules named monomers. Common plastics are examples of synthetic polymers. DNA is an example of a biological polymer.
15. **Risk or Chemical Risk:** The likelihood of an adverse effect in an organism, system, or population caused by exposure to a substance. Risk is a combination of hazard and exposure.
16. **Toxicity:** The degree to which a chemical can damage an organism.

Products

17. **Alternatives analysis:** Process for identifying and comparing potential chemical, material, and process-level alternatives used as substitutes. Analysis based on hazard, feasibility, and availability of potential alternatives. Other considerations may include exposure, materials management, social impact, and life cycle.

- An example of a process alternative for a toxic chemical would be instead of using thermal paper coated with a chemical for receipts, use electronic or digital receipts that don't require the use of the chemically-coated paper.

18. **Available:** The alternative is currently used in a product that is marketed for sale.
19. **Certified safer product:** A product that has had its ingredients disclosed and been reviewed by a third party to verify ingredients meet a safer standard and to promote ingredient transparency.
20. **Consumer product:** Any item, component part, or packaging sold for residential or commercial use.
21. **Feasible:** Performs a function similar to a chemical it is replacing.
22. **Intentionally Added:** When a chemical is added to a product to perform an intended function in the final product or manufacturing of the product. For example, PFAS is added to provide stain resistance.
23. **Safer:** Less hazardous to humans or the environment than the existing chemical or chemical process.

Related Information

- Chapter 70A.350 RCW: Toxic Pollution[1]
- Chapter 173-337 WAC: Safer Products Restriction and Reporting[2]
- Ecology's Safer Products for Washington webpage [3]
- Ecology's compliance and reporting webpage[4]

Safer Products for Washington
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[1] https://app.leg.wa.gov/rcw/default.aspx?cite=70A.350
[2] https://app.leg.wa.gov/wac/default.aspx?cite=173-337
[3] https://ecology.wa.gov/safer-products-wa
[4] https://ecology.wa.gov/waste-toxics/reducing-toxic-chemicals/washingtons-toxics-in-products-laws/safer-products/compliance-and-reporting