Types of Mixtures

Aim

- describe the properties of solutions and differentiate between solute and solvent
- describe the properties of mechanical mixtures and compare and contrast the types

Notes

Solutions

- ★ homogeneous mixtures
  - ☆ composed of two or more substances and have variable composition BUT
  - ☆ the particles are distributed evenly throughout each other SO
    - ✯ the composition is uniform
    - ✯ the solution appears to be one substance
- ★ consist of a solute dissolved in a solvent
  - ☆ solute - substance that IS dissolved by another
  - ☆ solvent
    - ✯ substance that dissolves another
    - ✯ continuous phase - salt dissolved in water appears to be a liquid

Mechanical mixtures

- ★ heterogeneous - not uniform throughout
  - ☆ consist of two or more visible parts or phases
  - ☆ the phases often separate over time
- ★ types
  - ☆ suspension - mixture in which particles of a liquid or solid are dispersed throughout a liquid
    - ✯ appear cloudy
    - ✯ particles are small enough to be "held" or suspended by the liquid for a while
    - ✯ particles are large enough that they eventually settle and the phases separate
    - ✯ particles are large enough to be filtered
    - ✯ particles reflect light making a beam of light visible (Tyndall Effect)
    - ✯ examples: calamine lotion, silver polish, liquid shoe polish
  - ☆ colloidal dispersion
    - ✯ appears slightly cloudy; may appear heterogeneous
    - ✯ particles are small enough to stay suspended and not settle on standing
    - ✯ particles are large enough to show Tyndall effect
    - ✯ examples: Jell-O, whipped cream, milk

Answer the questions below by circling the number of the correct response

1. Which of the following mixtures has the smallest particles? (1) solution (2) emulsion (3) suspension (4) colloidal dispersion

2. A light that is shined through the material in a container is reflected in such a way that it forms a visible ray or beam. The material in the container could be (1) an element, (2) a compound, (3) a solution (4) a colloidal dispersion

3. Material left in a container separates into two phases. The material in the container could be a (1) compound, (2) solution, (3) suspension, (4) colloidal dispersion.

4. Detergent is added to oil and water in a test tube and shaken vigorously for several minutes. The cloudy mixture that forms is a (1) solution, (2) emulsion, (3) compound, (4) colloidal dispersion.

5. A mixture containing 3 g of salt in 60 mL of water has a concentration of (1) 0.05 g/mL, (2) 20 mL/g, (3) 180 g/mL (4) 63 mL/g

6. The gold found in jewelry is not pure. Rather, it is an alloy - a solution of other metals with gold. The solvent in the gold jewelry can best be described as a (1) solid, (2) liquid, (3) gas.

7. Which of the following appears to be one substance even though it is actually two or more substances? (1) solution (2) suspension (3) emulsion (4) mechanical mixture

8. Which of the following would be classified as a mechanical mixture? (1) element (2) compound (3) solution (4) emulsion