Ch. 1 - Matter

II. Classification of Matter

(p.15-17, 397-398)

- Matter Flowchart
- Pure Substances
- Mixtures

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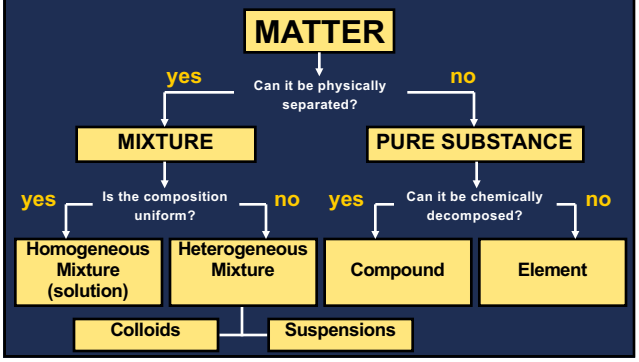
A. Matter Flowchart



A. Matter Flowchart

- **Examples:**
  - graphite — element
  - pepper — hetero. mixture
  - sugar (sucrose) — compound
  - paint — hetero. mixture
  - soda — solution

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B. Pure Substances

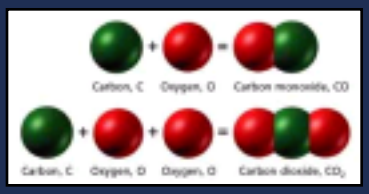
- **Element**
  - composed of identical atoms
  - EX: copper wire, aluminum foil

B. Pure Substances

- **Compound**
  - composed of 2 or more elements in a fixed ratio
  - properties differ from those of individual elements
  - EX: table salt (NaCl)

B. Pure Substances

- For example…



Two different compounds, each has a definite composition.

C. Mixtures

- Variable combination of 2 or more pure substances.

Heterogeneous

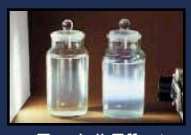
Homogeneous

B. Pure Substances

- **Law of Definite Composition**
  - A given compound always contains the same, fixed ratio of elements.
- **Law of Multiple Proportions**
  - Elements can combine in different ratios to form different compounds.

C. Mixtures

- **Solution**
  - homogeneous
  - very small particles
  - no Tyndall effect
  - particles don't settle
  - EX: rubbing alcohol



Tyndall Effect

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C. Mixtures

- **Colloid**
  - heterogeneous
  - medium-sized particles
  - Tyndall effect
  - particles don't settle
  - EX: milk

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C. Mixtures

- **Suspension**
  - heterogeneous
  - large particles
  - Tyndall effect
  - particles settle
  - EX: fresh-squeezed lemonade

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C. Mixtures

- **Examples:**
  - mayonnaise — colloid
  - muddy water — suspension
  - fog — colloid
  - saltwater — solution
  - Italian salad dressing — suspension

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