

Composition Of Matter (p. 450 – 456)

I. Pure Substances

1. Define the term substance (*pure substance*).

Substance – type of matter with a fixed composition
(O_2 = elemental oxygen; H_2O = water)

2. What are two categories of pure substances?

1. Elements 2. Compounds

3. Define the term element.

Element – all of the atoms in a substance with same identity

4. The smallest particle of an element is an atom.

Circle One : True False

5. Using the periodic table (p. 518 – 519), identify each elements that is a gas at room temp.

- a. carbon
b. oxygen
c. mercury
d. nitrogen

Liquids @ room temp.

- Mercury
- Bromine

($20^\circ C$ or $68^\circ F$)

* Most elements are solids at room temp.

6. Define the term compound.

Compound – substance in which the atoms of two or more elements are combined in a fixed proportion

7. List two characteristics of compounds.

1. Always contains at least two elements
2. Substances always joined in a fixed proportion.
3. Can be broken down into simpler substances.

II. Mixtures

1. Define the term mixture.

Mixture – material made up of two or more substances that can easily be separated by physical means

2. Match the type of mixture with the correct definition.

1. B. - Heterogeneous A. Contains two or more substances blended evenly together
2. A. - Homogeneous B. Different materials can be distinguished easily

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Examples:

- H_2O - HCl
- CH_4 - $C_8H_{12}O_8$
- CO_2
- H_2SO_4

3. Give two examples of each type of mixture.

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Homogeneous Mixture p. 454

1. Salad, Sand, Granite 1. Flat Sift Drink, Vinegar
 2. Clothes pile, Fabric 2. Stainless Steel, Pool Water, Plastic

4. Define the term solution.

Solution - homogeneous mixture of particles so small that they cannot be seen with a microscope (Never settle to the bottom of a container)

Ex. - Wipes Fluid
Tap Water

5. What is the difference between a solute and a solvent? (Not in the book.)

Solute - substance that is dissolved (Kool-Aid + Sugar)

Solvent - substance performing the dissolving (Water)

6. Define the term colloid.

Colloid - mixture with particles that are larger than those in solutions but not heavy enough to settle out

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top

7. Circle the letter before each example of a colloid.

- a. milk
b. muddy water
c. fog
d. paint

Other Colloids
- Gelatin
- Smoke

8. How can colloid be distinguished from a solution?

Pass a beam of light through it → (Visible = Colloid)

9. Define the term Tyndall effect.

Tyndall Effect - scattering of light by colloids (Colloid particles are large enough to scatter light)

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10. Define the term suspension.

Suspension - heterogeneous mixture containing a liquid in which visible particles settle (Ex. Muddy Water, Dust Particles, Cream (Fresh Cow's Milk))

11. Complete the following table.

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Solutions, Suspensions, & Colloids			
Type Of Mixture	Relative Size Of Largest Particles	Settle Upon Standing?	Particles Scatter Light?
Solution	Small	No	No
Colloid	Intermediate	No	Yes
Suspension	Large	Yes	Yes