

Chemistry Chapter 3

1. **Chemical Change:** a process involving one or more substances changing into new substances; also called a chemical reaction.
2. **Chemical Property:** the ability or inability of a substance to combine with or change into one or more new substances.
3. **Chromatography:** a technique that is used to separate the components of a mixture based on the tendency of each component to travel or be drawn across the surface of another material.
4. **Compound:** a chemical combination of two or more different elements; can be broken down into simpler substances by chemical means and has properties different from those of its component elements.
5. **Crystallization:** a separation technique that produces pure solid particles of a substance from a solution that contains the dissolved substances.
6. **Distillation:** a technique that can be used to physically separate most homogeneous mixtures based on the differences in the boiling points of the substances involved.
7. **Element:** a pure substance that cannot be broken down into simpler substances by physical or chemical means.
8. **Extensive Properties:** a physical property, such as mass, length, and volume, that is dependent upon the amount of substance present.
9. **Filtration:** a technique that uses a porous barrier to separate a solid from a liquid.
10. **Gas:** a form of matter that flows to conform to the shape of its container, fills the container's entire volume, and is easily compressed.
11. **Heterogeneous Mixture:** one that does not have a uniform composition and in which the individual substances remain distinct.
12. **Homogeneous Mixture:** one that has a uniform composition throughout and always has a single phase; also called a solution.
13. **Intensive Properties:** a physical property that remains the same no matter how much of a substance is present.
14. **Law of Conservation of Mass:** states that mass is neither created nor destroyed during a chemical reaction but is conserved.
15. **Law of Definite Proportions:** states that, regardless of the amount, a compound is always composed of the same elements in the same proportions by mass.
16. **Law of Multiple Proportions:** states that when different compounds are formed by the combination of the same elements, different masses of one element combine with the same mass of the other element in a ratio of small whole numbers.
17. **Liquid:** a form of matter that flows, has constant volume, and takes the shape of its container.
18. **Mixture:** a physical blend of two or more pure substances in any proportion in which each substance retains its individual properties; can be separated by physical means.
19. **Percent by Mass:** a percentage determined by the ratio of the mass of each element to the total mass of the compound.

- 20. Periodic Table:** a chart that organizes all known elements into a grid of horizontal rows (periods) and vertical columns (groups or families) arranged by increasing atomic numbers.
- 21. Physical Changes:** a type of change that alters the physical properties of a substance but does not change its composition.
- 22. Physical Property:** a characteristic of matter that can be observed or measured without changing the sample's composition – for example, density, color, taste, hardness, and melting point.
- 23. Solid:** a form of matter that has its own definite shape and volume, is incompressible, and expands only slightly when heated.
- 24. Solution:** a uniform mixture that may contain solids, liquids, or gases; also called a homogeneous mixture.
- 25. States of Matter:** the physical forms in which all matter naturally exists on Earth-most commonly as a solid, a liquid, or a gas.
- 26. Substance:** a form of matter that has a uniform and unchanging composition; also known as a pure substance.
- 27. Vapor:** gaseous state of a substance that is a liquid or a solid at room temperature.

Law of Conservation of Mass - $\text{Mass}_{\text{reactants}} = \text{Mass}_{\text{products}}$ pg. 63

Percent by Mass = $\frac{\text{Mass}_{\text{element}}}{\text{Mass}_{\text{compound}}} \times 100$ pg. 81