

Ch. 5 Notes Observing Chemical Change

I. How Can Changes In Matter Be Described? (p. 163 - 165)

A. Properties of Matter

- Matter can be described by its physical and chemical properties or how it changes.

B. Physical Properties:

- Observed without changing the substance
- Ex: temperature, color, texture, density, conductivity, state of matter

C. Chemical Properties:

- Ability to change into something completely new
- Ex: flammability, reaction to acids, oxidation (rust, tarnish)

D. PHYSICAL CHANGES affect the appearance NOT what the substance is.

CHEMICAL CHANGES produce one or more new substances or a chemical reaction.

Wine into water DEMO!

E. REACTANTS - substances that undergo the chemical changes

PRODUCTS - new substances that form as a result

F. Bonding and Chemical Changes

- Chemical changes occur when existing bonds break and new bonds formation
- New substances are produced
- Atoms form bonds when they share or transfer electrons

II. How Do You Identify a Chemical Reaction? (p. 166-168)

A. Changes In Properties

- Changes in properties result when new substances form.
- Evidence of chemical changes: formation of a precipitate, gas production and/or color changes

** Steel Wool + lighter**

B. PRECIPITATE - a solid that forms in a chemical reaction when two liquids are combined. (*yogurt & curdled milk, cottage cheese*)

C. EXOTHERMIC REACTION: energy released as the products form are *greater* than the energy required to break the bonds of the reactants.

- Energy is usually released as heat! (Ex. Fireworks)

D. ENDOTHERMIC REACTION:

- More energy is required to break the bonds than is released by the formation of the products
- When energy is absorbed the surroundings become *cooler* (Air Spray Can)

