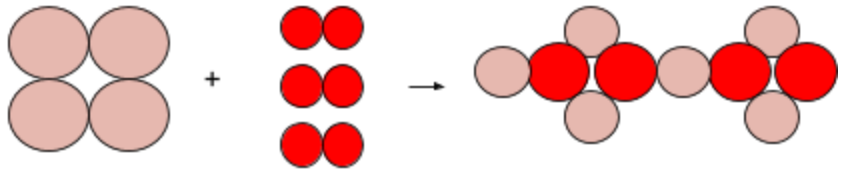
Chemical Properties Lab

Name(s):_____ *Date:* _____

Introduction:

Every substance has a unique set of physical and chemical properties. **Chemical property** is a characteristic of a substance that can be observed when a substance interacts with other substances and in the process changes its composition.

$$4\ Fe + 3\ O_2 \rightarrow 2\ Fe_2O_3$$

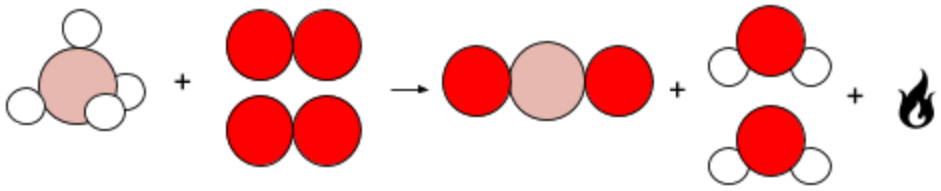


iron metal + oxygen gas → rust

In other words, chemical properties can only be observed when a substance undergoes a chemical reaction to form a new compound. Some chemical properties are:

Combustibility - how much heat the substance produces when reacting (combining) with oxygen.

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O + \text{energy (heat)}$$



methane gas + oxygen gas →carbon dioxide gas + water + heat

Flammability - how easily a substance will burn.

A **flash point** is the lowest temperature at which vapours of a substance will ignite. Therefore, a flash point can be used to determine a fire hazards of materials. It can be used to distinguish between flammable substances (lower flash point - will ignite easily) from combustible materials (higher flash point). Liquids with a flashpoint below 60℃ are flammable and liquids with a flashpoint above 60℃ are combustible.

Toxicity - how much and how fast the substance will damage an organism.

Chemical stability - how resistant the substance is to changing its composition.

Reactivity - how fast will the substance react with water, acid and oxygen (oxidation), etc.

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