

# Chemical vs. Physical Properties and Changes

Physical Properties are those characteristics of a material that you can observe without changing the substance itself. Examples include density, melting point, boiling point, shape and color. It is differences in physical properties that are used to separate the fractions in a mixture.

Physical Changes are any changes to a substance that do not change the identity of the substance itself. Examples include phase changes, tearing and crushing.

Chemical Changes are any changes that cause one substance to change into another substance. Changes in odor, production of a gas, release of light, a change in its solubility, rusting and burning are examples.

Chemical Properties are those characteristics of a substance that indicates whether it can undergo a certain chemical change. Examples include flammability, whether it reacts with acids or bases, if it changes when exposed to light or heat, and whether it produces a gas or not when mixed with other substances.

The Law of Conservation of Mass states that in all physical and chemical changes the mass stays the same in a closed system (a completely isolated system). Mass is neither created or destroyed though it may be rearranged in various ways as in a chemical or physical change.