



ST. LAWRENCE HIGH SCHOOL



A JESUIT CHRISTIAN MINORITY INSTITUTION

- **Subject- Physical science Study Materials Class 7**
- **Date : 4.05.2020**
- **Chapter: Physical and Chemical changes**

Definition:

A **chemical change** results from a **chemical** reaction, while a **physical change** is when matter **changes** forms but not **chemical** identity. Examples of **chemical changes** are burning, cooking, rusting, and rotting. Examples of **physical changes** are boiling, melting, freezing, and shredding.

Chemical and Physical Change Examples

- A chemical change results from a chemical reaction, while a physical change is when matter changes forms but not chemical identity.
- Examples of chemical changes are burning, cooking, rusting, and rotting.
- Examples of physical changes are boiling, melting, freezing, and shredding.
- Often, physical changes can be undone, if energy is input. The only way to reverse a chemical change is via another chemical reaction.

Examples of Chemical Changes

A new compound (product) results from a chemical change as the atoms rearrange themselves to form new chemical bonds.

- Burning wood
- Souring milk
- Mixing acid and base
- Digesting food
- Cooking an egg
- Heating sugar to form caramel
- Baking a cake
- Rusting of iron

Examples of Physical Changes

No new chemical species forms in a physical change. Changing the state of a pure substance between solid, liquid, and gas phases of matter are all physical changes since the identity of the matter does not change.

- Crumpling a sheet of aluminum foil

- Melting an ice cube
- Casting silver in a mold
- Breaking a bottle
- Boiling water
- Evaporating alcohol
- Shredding paper
- Sublimation of dry ice into carbon dioxide vapor

cooking, rusting, and rotting. Examples of **physical changes** are boiling, melting, freezing, and shredding.

Key Differences Between Physical and Chemical Changes

Following are the important point to distinguish the physical and the chemical changes:

- Physical changes refer to such changes in the material when the mass of the substance and the internal arrangement of the molecules and atoms remains same, even after the reaction. On the contrary, when changes involve the formation of the new substance from the original substance is called a chemical change. In this, the arrangement of the atoms and molecules of the substance also get altered.
- Physical changes are temporary and involve the transformation in different phases of matter like from solid to liquid; liquid to gas. Whereas chemical changes are permanent as it participates in the breaking and formation of new bonds to make the new compounds.
- The physical change affects only physical properties of the material like shape, size, colour whereas chemical properties affect not as physical as well as the chemical properties of the material, as there is an internal change in the atoms and molecules of the material.
- No new substance is formed, and even physical changes are generally reversible, while chemical changes always produce new substances, the atoms and molecules rearrange themselves and form a new compound, and these can be irreversible or reversible.
- There is no energy required or produced during physical changes, but in the chemical change, there is always the requirement of energy. The energy is either absorbed or released in the form of light, heat or sound.
- Few examples of physical change in the day to day life are shaping the clay in different shapes, tearing of paper, changing of ice into water or vice versa, cutting a wooden pile. On the other hand burning of a matchstick, fuels, digestion of food, the formation of curd, cooked or riped vegetables, fruits, getting old are some of the examples of the chemical changes.

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