

## Chapter 1 - Chemical Reactions and Equations

**Chemical change:** - is a change in which one or more new substances are formed.

In a chemical change—

- New substances are formed.
- Energy changes are involved.
- There is a change in mass during the reaction.
- Permanent change takes place.

Examples –

- ❖ Cooking of food
- ❖ Rusting of iron
- ❖ Heating of Lead nitrate
- ❖ Souring of milk
- ❖ Ripening of fruit.

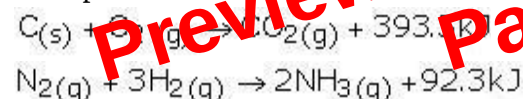
Rusting of iron is a chemical change because

- ❖ A new substance iron oxide is formed.
- ❖ The change is permanent; the article has got a rust layer (which may only peel off).
- ❖ There is an increase in mass when rust forms.
- ❖ An energy change has taken place (which may not be visible).

Chemical changes are also known as chemical reactions.

**Exothermic Reaction** - A chemical reaction which is accompanied by evolution of heat energy is known as exothermic reaction.

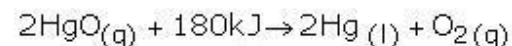
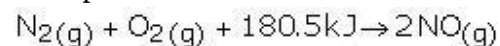
Examples:



The amount of heat (energy) produced is written along with the products. This indicates that heat is given out.

**Endothermic Reactions** - A chemical reaction which is accompanied by absorption of heat energy is known as exothermic reaction.

Examples:



The amount of heat (energy) produced is written along with the reactants. This indicates that heat is absorbed.