

# CHEMISTRY STUDY MATERIALS FOR CLASS 10

**GANESH KUMAR**

**DATE:- 01/04/2020**

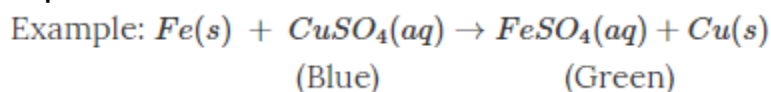
Science is a subject that explains how the world around us is made of. Chemical reactions are used to explain the various processes that happen around us. From rust to decomposition, chemical reactions provide a more in-depth insight into how molecular interaction and changes occur. In other words, chapter 1 of CBSE class 10 Science explains how a substance changes form.

## Revision Notes Chapter 1 Chemical Reactions and Equations:-

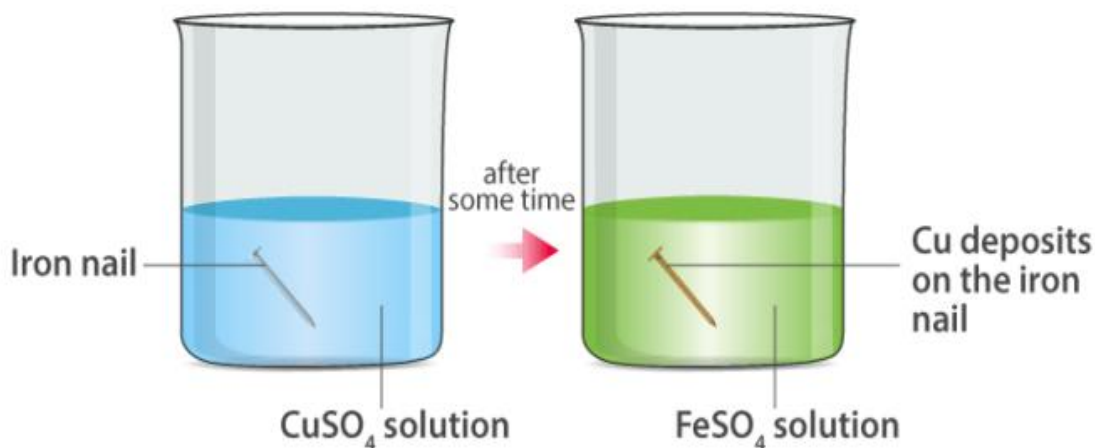
Introduction to Chemical Reactions and Equations

### Physical and chemical changes

**Chemical change** – one or more new substances with new physical and chemical properties are formed.



Here, when copper sulphate reacts with iron, two new substances, i.e., ferrous sulphate and copper are formed.



© Byjus.com

**Physical change** – change in colour or state occurs but no new substance is formed. Example: Water changes to steam on boiling but no new substance is formed (Even though steam and water look different when they are made to react with a piece of Na, they react the same way and give the exact same products). This involves only a change in state (liquid to vapour).

## OBSERVATIONS THAT HELP DETERMINE A CHEMICAL REACTION

A chemical reaction can be determined with the help of any of the following observations: a) Evolution of a gas b) Change in temperature  
c) Formation of a precipitate d) Change in colour e) Change of state

## CHEMICAL REACTION

Chemical reactions are chemical changes in which reactants transform into products by making or breaking of bonds (or both) between different atoms.

### Types of chemical reactions

Taking into consideration different factors, chemical reactions are grouped into multiple categories.

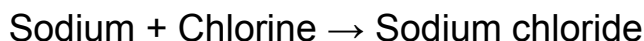
- Combination
- Double displacement
- Exothermic
- Decomposition
- Redox
- Precipitation
- Single Displacement
- Endothermic
- Neutralisation

## CHEMICAL REACTIONS AND EQUATIONS I

### Word equation

A word equation is a chemical reaction expressed in words rather than chemical formulas. It helps identify the reactants and products in a chemical reaction.

For example,



The above equation means: "Sodium reacts with chlorine to form sodium chloride."

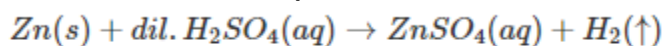
### Symbols of elements and their valencies

A symbol is the chemical code for an element. Each element has one or two-letter atomic symbol, which is the abbreviated form of its name.

**Valency** is the combining capacity of an element. It can be considered as the number of electrons lost, gain or shared by an atom when it combines with another atom to form a molecule.

### Writing chemical equations

Representation of a chemical reaction in terms of symbols and chemical formulae of the reactants and products is known as a chemical equation.



(Reactants)

(Products)

- For solids, the symbol is "(s)".
- For liquids, it is "(l)".
- For gases, it is "(g)".
- For aqueous solutions, it is "(aq)".
- For gas produced in the reaction, it is represented by "(↑)".
- For precipitate formed in the reaction, it is represented by "(↓)".

\*\*\*\*\*