# Chemistry Notes for class 12 Chapter 2 Solutions

Solution is a homogeneous mixture of two or more substances in same or different physical phases. The substances forming the solution are called components of the solution. On the basis of number of components a solution of two components is called binary solution.

#### **Solute and Solvent**

In a binary solution, solvent is the component which is present in large quantity while the other component is known as solute.

#### **Classification of Solutions**

(A) Following types of solutions are seen on the basis of physical state of solute and solvent.

S.No.	Solute	Solvent	Examples
Solid solutions	2	8	CO.UK
1	Solid	Solid	Alloys cale.
2.	Laud	Solid	Octobed salts, Amalgam of Hg with N
3.	Gas	ron	Dissoved gases in mineral
Liquid solutions	view '	90	
Pre	Solic		-Salt/sugar solution in water
5	Liquid	Liquid	Alcohol in water
6	Gas	Liguid	Aerated drinks, O <sub>2</sub> in water
Gaseous solutions		**************************************	
7.	Solid	Gas	lodine vapour in air
8	Liquid	Gas	Water vapour in air
9.	Gas	Gas	Air $(O_2 + N_2)$

[if water is used as a solvent, the solution is called aqueous solution and if not, the solution is called non-aqueous solution.]

(**B**) Depending upon the amount of solute dissolved in a solvent we have the following types of solutions:

(i) **Unsaturated solution** A solution in which more solute can be dissolved without raising temperature is called an unsaturated solution.

www.ncerthelp.com (Visit for all ncert solutions in text and videos, CBSE syllabus, note and many more)

(ii) **Saturated solution** A solution in which no solute can be dissolved further at a given temperature is called a saturated solution.

(iii) Supersaturated solution A solution which contains more solute than that would be necessary to saturate it at a given temperature is called a supersaturated solution.

### **Solubility**

The maximum amount of a solute that can be dissolved in a given amount of solvent (generally 100 g) at a given temperature is termed as its solubility at that temperature.

The solubility of a solute in a liquid depends upon the following factors:

- (i) Nature of the solute
- (ii) Nature of the solvent
- (iii) Temperature of the solution
- (iv) Pressure (in case of gases)

# Henry's Law

The most commonly used form of Henry's law states "the partial pressure P) of the gas in vapour phase is proportional to the mole fraction (x) of the gas in the solution and is expressed from Notesa as

 $p = K_H \cdot x$ 

Greater the value of  $K_H$  the solubility of the gas. The value of  $K_H$  decreases with increase in the table of  $K_H$  decreases with increase in the temperature. Thus, a read species are more comfortable in cold water [more dissolved  $O_2$  rather than Warm water.

# **Applications**

1. In manufacture of soft drinks and soda water, CO<sub>2</sub> is passed at high pressure to increase its solubility.

2. To minimise the painful effects (bends) accompanying the decompression of deep sea divers.  $O_2$  diluted with less soluble. He gas is used as breathing gas.

3. At high altitudes, the partial pressure of  $O_2$  is less then that at the ground level. This leads to low concentrations of  $O_2$  in the blood of climbers which causes 'anoxia'.

## **Concentration of Solutions**

The concentration of a solution is defined as the relative amount of solute present in a solution. On the basis of concentration of solution there are two types of solutions.

(i) Dilute solution (ii) Concentrated solution

www.ncerthelp.com (Visit for all ncert solutions in text and videos, CBSE syllabus, note and many more)