



SNS academy



**an International CBSE Finger Print School
Coimbatore**

SUBJECT – CHEMISTRY

GRADE-XII

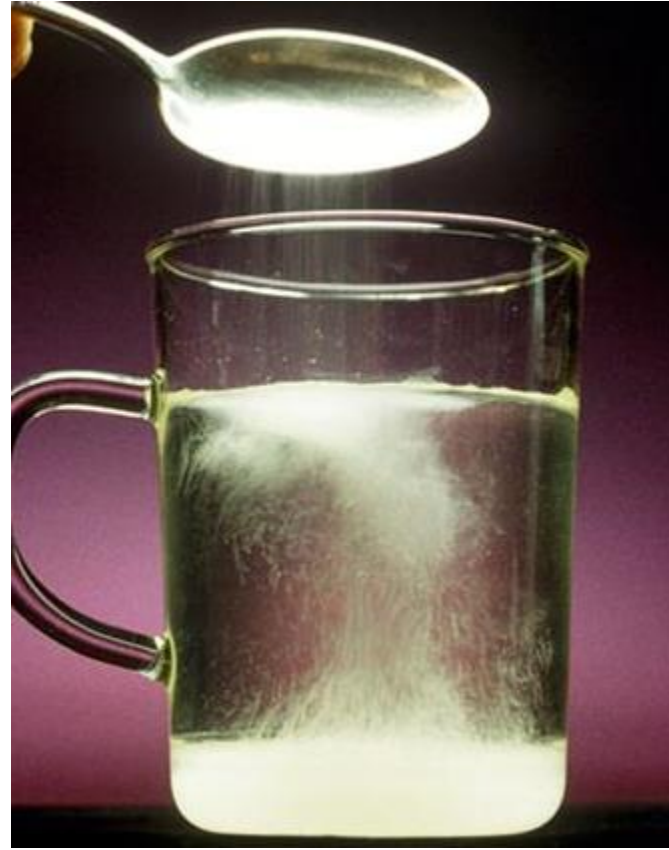
SOLUTIONS

TOPIC – INTRODUCTION TO SOLUTIONS - SOLUBILITY

SOLUTIONS



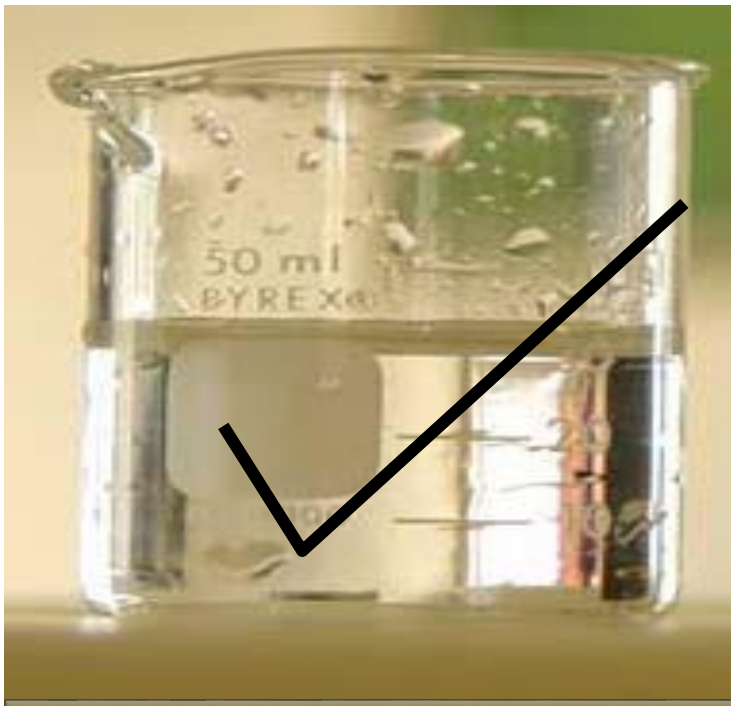
BRIEF INTRODUCTION OF SOLUTIONS



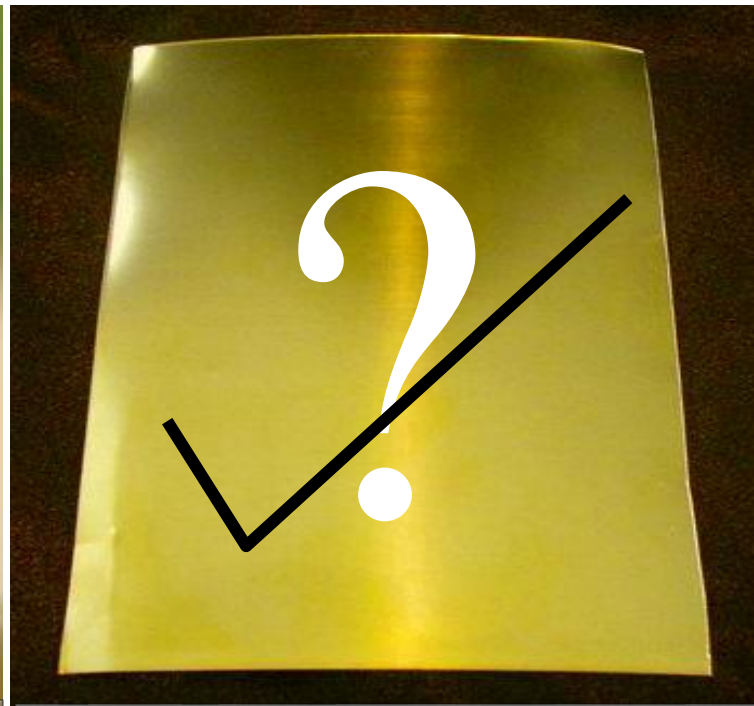
Most of the substances are mixtures containing two or more pure substances.
In our daily life we come across many substances.



Can you guess which of these are solutions?



Sugar solution



Brass



Air

All the three are the examples of solutions.



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SOLUTIONS



What is a homogeneous
What are solutions?
mixture?

- The **homogeneous mixture** of two or more than two components.
- Here, each component may be **solid, liquid or gaseous state.**

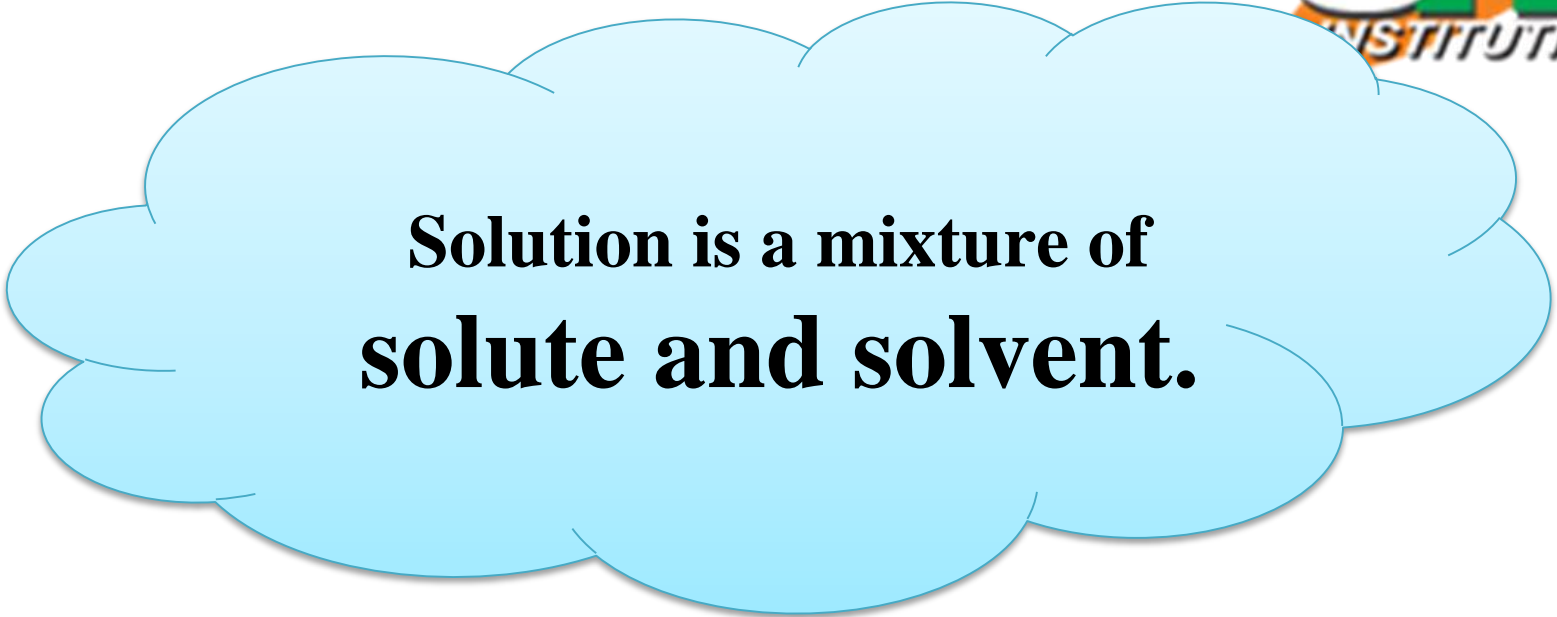
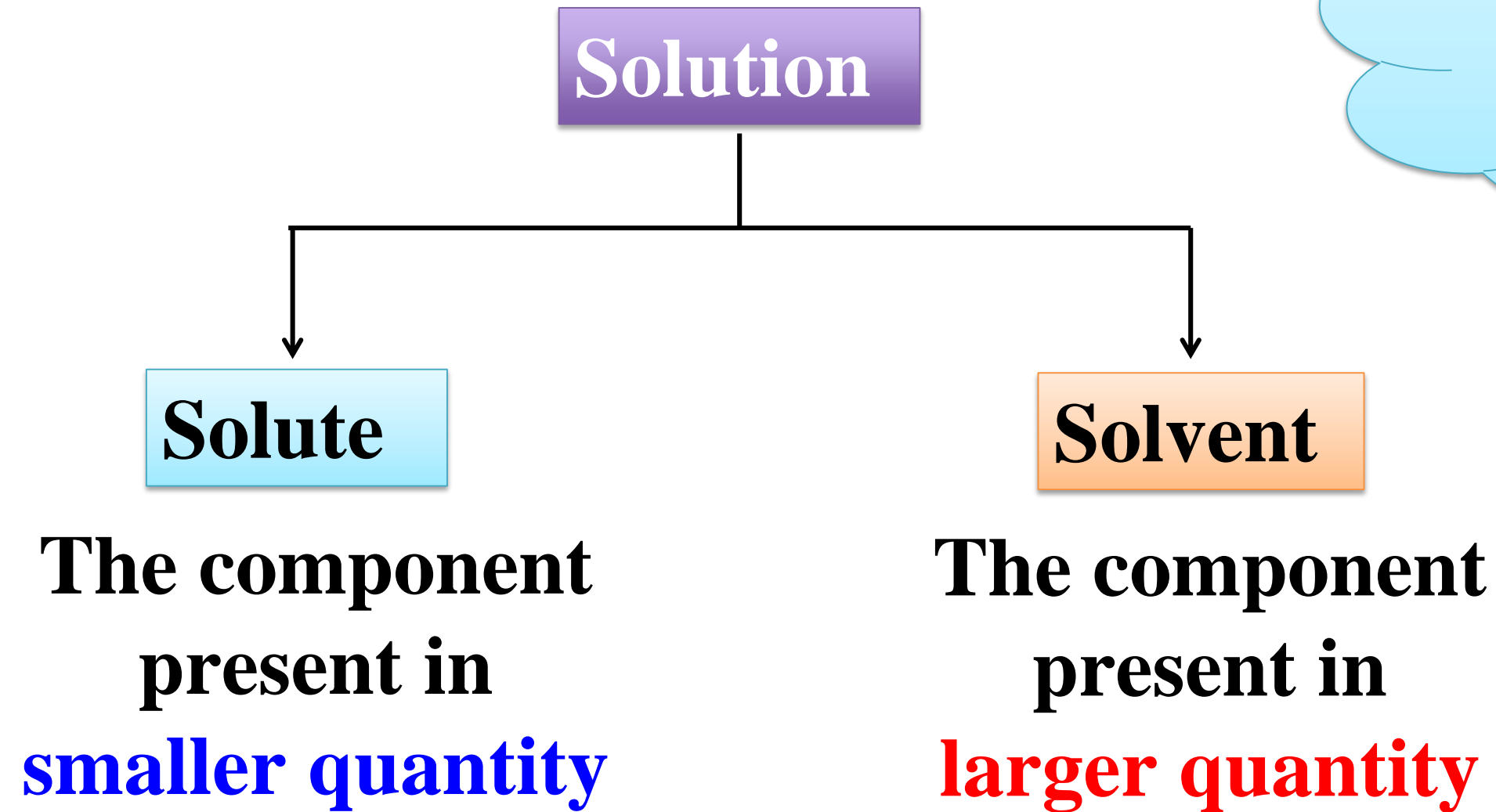
Homogeneous Mixture:

- **composition and physical properties are uniform throughout the mixture.**



Let's understand it :

- **take a spoon of sugar and mix thoroughly in a glass of water**
- **Then check whether the taste of every drop is same or not.**



Solution is a mixture of solute and solvent.

Identify solute and solvent in the given solution

1. A solution of **5 gram salt** in **1000 ml water** :

solute = salt; **solvent = water**

2. A solution of **5 ml ethanol** in **500 ml water** :

solute = ethanol; **solvent = water**

Note :-

In the above two solutions the solvent '**water**' is called *aqueous solution*.

MCQs

1. A solution is a _____ mixture of two or more components.

a) Heterogeneous

b)  Homogeneous

c) Colloid

d) Suspension

2. Homogeneous mixture implies _____ of appearance

a)  Uniformity

b) Non-uniformity

c) Equality

d) both a & c

3. The component present in small quantity is called _____

a) Solution

b) Solvent

c)  Solute

d) Mixture

4. In a solution of 5 gram sugar in 5000 ml of water, the solvent is

a) Sugar

b) Solution

c)  Water

d) there is no solvent

5. An aqueous solution is one which contains....

a)  Water as solvent

b) Alcohol as solvent

c) Benzene as solvent

d) Chloroform as solvent



CLASSIFICATION OF SOLUTIONS

Solution

No. of Components

Solutions can also be classified based on Physical State of Solute and Solvent

Components	Solution
2	Binary
3	Ternary
4	Quarter nary



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Gas	Gas	Gas in gas	Air



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Gas	liquid	Gas in liquid	Oxygen in water, Carbonated drinks.



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Gas	Solid	Gas in solid	Adsorption of H_2 by Nickel/Pt/Pd



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Liquid	Gas	Liquid in gas	Evaporation of liquids (moist nitrogen gas)



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Liquid	Liquid	Liquid in liquid	Ethyl alcohol in H ₂ O



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Liquid	Solid	Liquid in solid	Mercury in silver, Silver amalgam (Hg – Ag)



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Solid	Gas	Solid in Gas	Iodine in nitrogen, evaporation of camphor



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Solid	Liquid	Solid in Liquid	Sugar or salt solution



Physical State of Solute and Solvent

Solute	Solvent	Types of solution	Example
Solid	Solid	Solid in solid	Metal alloys



BRONZE WAS ONE OF THE FIRST ALLOYS CREATED BY HUMANS.

Question

What type of the solution is soda water?

Answer:

Gas in liquid type of solution .

(CO₂ gas is dissolved under pressure in water)



Question

What type of the solution is bronze?

Answer:

Solid in solid type of solution.

(A homogeneous mixture of copper & tin)



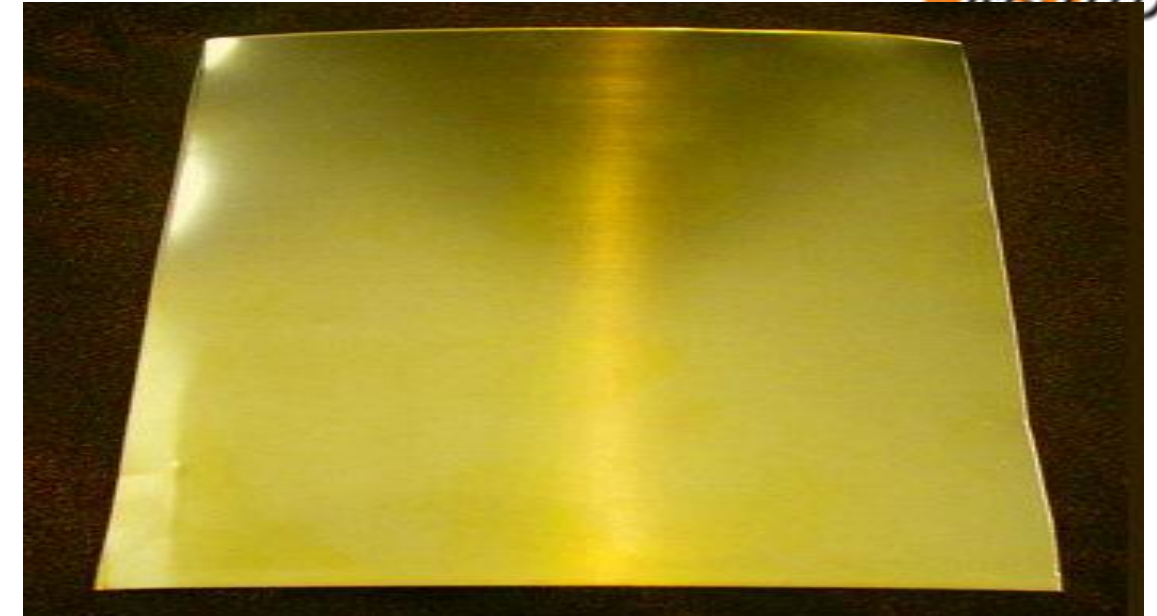
Question

What type of the solution is brass?

Answer:

Solid in solid type solution.

(A homogeneous mixture of copper & zinc)



Question

What type of the solution is the German silver ?

Answer:

Solid in solid type solution.

(A homogeneous mixture of copper, zinc, nickel)



MCQs

1. Metal Amalgam is _____ type of solution

a) Solid - solid

b) liquid in gas

c) solid in liquid

d) liquid in solid



2. Soda water is _____ solution

a) A quaternary

 **b) A binary**

c) A ternary

d) Not a solution

3. Sublimation leads to the formation of type of solution

a) Liquid-Solid

b) ✓ Solid-Gas

c) Solid-Liquid

d) Liquid-Gas

4. A sugar in water is..... type of solution

a) Aqueous solution

b) solid in liquid

c) binary solution

d)  All of these

