

Date
20/7/23

Lesson - 5

Acids, bases and salts

Notes

Acids → The substances that are sour in taste are called acids. The word acid is derived from the Latin word 'acidus' which means sour.

Types of Acids :-

1/ Organic Acids (Natural Acids) → The acids that are found in plants and animals are called organic acids. For example :- Citric acid ; Lactic acid, Acetic acid, etc.

2/ Mineral Acids → The acids prepared from the minerals of the earth are called mineral acids. They are human-made acids and are also known as laboratory acids. The most common mineral acids are sulphuric acid (H_2SO_4), nitric acid (HNO_3) and hydrochloric acid (HCl).

Dilute and Concentrated Acids :-



(a) Dilute acid :- The acidic solution that has a large quantity of water and a small quantity of acid is called dilute acid.

(b) Concentrated acid :- The acidic solution that has a small quantity of water and a large quantity of acid is called concentrated acid.

Bases $\Rightarrow$ The substances that are bitter in taste and have soapy touch are called bases.

Some common bases are sodium hydroxide (NaOH), potassium hydroxide (KOH), calcium hydroxide [$\text{Ca}(\text{OH})_2$] and magnesium hydroxide [$\text{Mg}(\text{OH})_2$].

Neutral substances $\Rightarrow$ The substances that are neither acidic nor basic in nature are called neutral substances. Pure water (or distilled), glucose, urea, sugar, salt, etc.

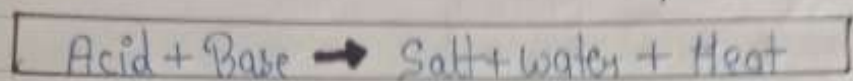
Indicator $\Rightarrow$ Indicators are special substances that give different colours in acidic and basic mediums.

Neutralisation reaction (reaction of acid and base).



The reaction in which an acid reacts with a base to form salt and water is called neutralisation reaction. Some heat is always evolved (produced) in a neutralisation reaction.

Neutralisation reaction can be represented as:



Short type - 1 (Question & Answer)

Q1: What are indicators?

Ans: Answer in notes.

Q2: Why is an antacid tablet taken when you suffer from acidity?

Ans: An antacid tablet is taken when you suffer from acidity because an antacid such as milk of magnesia which is a mild base. It helps to neutralize the effect of excessive acid in the stomach.

Q3: Why do curd, lemon juice and tamarind taste sour?

Ans: Curd, lemon juice and tamarind taste sour. These substances taste sour because they contain acids. The chemical nature of such substances is acidic. These contain tartaric acid.



Q47 Why are mineral acids known as laboratory acids?

Ans47 Mineral acids are human-made acids and are also known as laboratory acids.

Short type - 2 (question & Answer)

Q17 Give three examples of mineral and natural acids. Mention the sources of natural acids?

Ans17 Commonly used mineral acids are sulfuric acids, hydrochloric acid and nitric acids (they are also known as bench acids).

Ex. of natural acids are:- sulfuric, nitric, phosphoric acids etc acids. The sources of natural acids are plants and animals.

Q27 Why should we treat factory wastes before discharging them into a river?

Ans27 Factory waste is neutralized before disposing it into the water bodies. (a) We take an antacid tablet such as mild of magnesia to neutralises the excessive acid released in stomach (b) The factory wastes contains acids if are allowed to flow into the water bodies and can kill fishes and other organisms.



Q3) Annie is playing in her garden with her friend, Ishrat. Suddenly, a bee bites Ishrat. Annie immediately brings baking soda and rubs it on the stung area.

(a) Why does Annie apply baking soda?

Ans) Annie apply baking soda because it is a weak powder solvent, it is an antiseptic powder. Its chemical name is Sodium bicarbonate (NaHCO_3).

(b) What values do you learn from Annie?

Ans) If any insect bites a person we immediately give first aid treatment and wash with water where insects bite.

Q4) What is the difference between dilute and concentrated acid?

Ans) Dilute acid → The acidic solution that has a large quantity of water and a small quantity of acid is known as dilute acids.

Concentrated acid → The acidic solution that has a small quantity of water and a large quantity of acid is known as concentrated acids.



Long answers :-

Q1. (a) Define neutralisation reaction.

Ans. → Neutralisation is a chemical reaction in which an acid and a base react quantitatively with each other. In a reaction in water, neutralisation results in there being no excess of hydrogen or hydroxide ions present in the solution.

(b) What should be added in the soil when it is:

(i) too acidic → Excessive use of chemical fertilizers makes the soil acidic.

(ii) too basic? Discuss your answer. → The decaying organic matter (called manure or compost) is added to the soil when it is too basic. Manure releases acids that neutralise the basic nature of the soil.

(c) What are organic acids? Give examples.

Ans. → The acids that are found in plants and animals are called organic acids. For example:- Citric acid; Lactic acid, etc.

Q2. → Differentiate between acids and bases.

Ans. → The substances that are sour in taste are known as acids while the substances that are bitter in taste and have soapy touch are known as bases.

