

# CHEMISTRY STUDY MATERIALS FOR CLASS 10

## (NCERT Based notes of Chapter -02)

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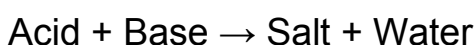
**DATE:- 22/04/2021**

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### ACIDS, BASES AND SALTS

#### NEUTRALISATION REACTION:

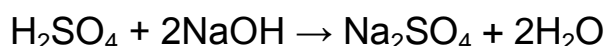
An acid neutralizes a base when they react with each other and respective salt and water are formed.



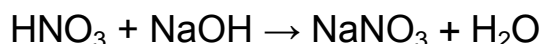
Since in the reaction between acid and base both neutralize each other, hence it is also known as neutralization reaction.

#### Example:

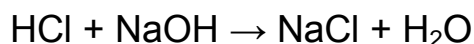
- Sodium sulphate and water are formed when sulphuric acid reacts with sodium hydroxide (a base).



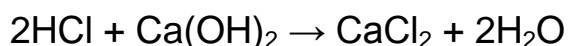
- In similar way, when nitric acid reacts with sodium hydroxide, sodium nitrate and water are formed.



- Sodium chloride and water are formed when hydrochloric acid reacts with sodium hydroxide (a strong base).

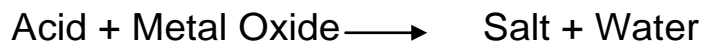


- In similar way, calcium chloride is formed along with water when hydrochloric acid reacts with calcium hydroxide (a base).



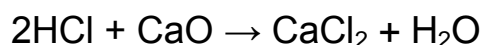
## REACTION OF ACID WITH METAL OXIDES:

Metal oxides are basic in nature. Thus, when an acid reacts with a metal oxide both neutralize each other. In this reaction, respective salt and water are formed.

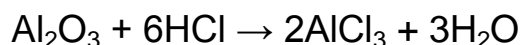


### Example:

- Calcium is a metal, thus calcium oxide is a metallic oxide which is basic in nature. When an acid; such as hydrochloric acid; reacts with calcium oxide, neutralization reaction takes place and calcium chloride; along with water; is formed.



- Similarly, when sulphuric acid reacts with zinc oxide, zinc sulphate and water are formed.  $\text{H}_2\text{SO}_4 + \text{ZnO} \rightarrow \text{ZnCl}_2 + \text{H}_2\text{O}$
- When hydrochloric acid reacts with aluminium oxide, aluminium chloride and water are formed.



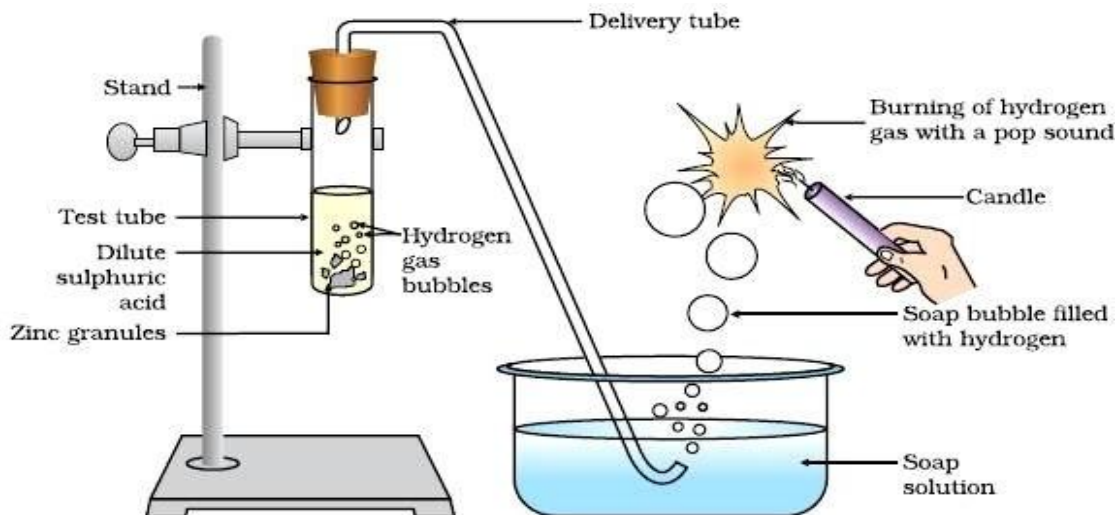
## INTEXT QUESTIONS PAGE NO. 22

**Question 1: Why should curd and sour substances not be kept in brass and copper vessels?**

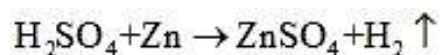
**Answer :** Curd and other sour substances contain acids. Therefore, when they are kept in brass and copper vessels, the metal reacts with the acid to liberate hydrogen gas and harmful products, thereby spoiling the food.

**Question 2: Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example. How will you test for the presence of this gas?**

**Answer :** Hydrogen gas is usually liberated when an acid reacts with a metal.



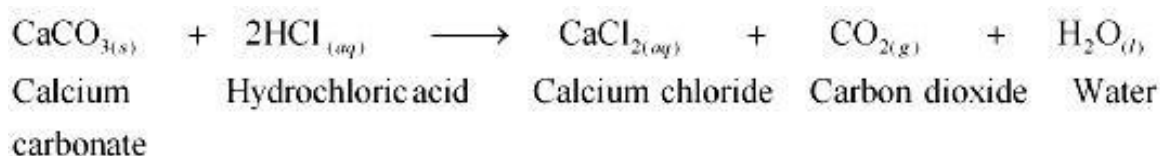
Take few pieces of zinc granules and add 5 ml of dilute  $H_2SO_4$ . Shake it and pass the gas produced into a soap solution. The bubbles of the soap solution are formed. These soap bubbles contain hydrogen gas.



We can test the evolved hydrogen gas by its burning with a pop sound when a candle is brought near the soap bubbles.

**Question 3: Metal compound A reacts with dilute hydrochloric acid to produce effervescence. The gas evolved extinguishes a burning candle. Write a balanced chemical equation for the reaction if one of the compounds formed is calcium chloride.**

**Answer :**



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