



## Neutralization in Everyday Life

### Introduction

Neutralization is a chemical reaction in which an acid and a base react to form salt and water. This process is commonly observed in various everyday situations, from cooking to medical treatments and agriculture.

### Example of Neutralization in Cooking

Riya and Karan were watching a cooking show and observed vinegar being added to baking soda in a recipe.

#### Why does this happen?

- Vinegar is an acid, and baking soda is a base.
- When they react, they produce carbon dioxide gas, which causes the dough to become fluffy.
- This reaction is an example of neutralization.

### Applications of Neutralization in Everyday Life

#### i. Soil Treatment

**Problem:** Excessive use of chemical fertilizers makes the soil acidic, which negatively affects plant growth.

**Solution:**

If the soil is too acidic, it is treated with bases like:

- Quick lime (Calcium Oxide -  $\text{CaO}$ )
- Slaked lime (Calcium Hydroxide -  $\text{Ca(OH)}_2$ )

If the soil is too basic, organic matter is added.

- Organic matter releases acids, which neutralize the basic nature of the soil, making it suitable for plant growth.

#### ii. Ant Bite Treatment

**Problem:** When an ant bites, it injects an acidic substance (Formic Acid) into the skin, causing irritation and pain.

**Solution:**

The acidic effect can be neutralized using a base, such as:



- Moist baking soda (Sodium Hydrogen Carbonate -  $\text{NaHCO}_3$ )
- Calamine solution (Zinc Carbonate -  $\text{ZnCO}_3$ )

### iii. Treatment of Indigestion

#### Problem:

- The stomach naturally produces hydrochloric acid (HCl) to help digest food.
- Excess acid production can cause indigestion, acidity, and discomfort.
- Tracheae: Tubes connected to the spiracles that branch into smaller tubes.

#### Solution:

Indigestion can be treated using antacids, which are mild bases that neutralize excess stomach acid. Common antacids include:

- Milk of Magnesia (Magnesium Hydroxide -  $\text{Mg(OH)}_2$ )
- Other commercial antacids available in tablet or liquid form.

### Conclusion

Neutralization plays a crucial role in various aspects of daily life, from agriculture and medical treatments to cooking and digestion. Understanding how acids and bases react helps in solving common problems effectively.