• Weak acids

The acids which release H^+ ions in aqueous medium by incomplete or partial ionisation are called weak acids. This means that in aqueous medium, only a fraction of such acid molecules are dissociated into H^+ ions and relevant negative ions. The unionised molecules remain as molecules themselves in aqueous solution.

Examples for weak acids:

Acetic acid (CH_3COOH)

Carbonic acid (H_2CO_3)

Phosphoric acid (H_3PO_4)

Most of the acids in laboratory stores are **concentrated acids**. **Dilute acids** of required concentration can be prepared by mixing such concentrated acids with water. Acids of low concentration are known as dilute acids.

Properties of acids

★ Pay your attention to the warning symbol in Figure 7.2 seen in the label of the bottles containing concentrated acids. This is a warning about the corrosive nature of the relevant chemical. That is, when they come into contact with substances like wood, metals or cloth they corrode them and if spilled on the skin, they cause severe burns. This shows that acids have corrosive properties.

Figure 7.2

★ Recall the taste of lime juice. It is sour. A common feature of acids is that they have a characteristic sour taste.

Caution: You should not taste the acids used in the laboratory.

★ Dilute acids react with metals above hydrogen in the reactivity series forming the salt of the metal and hydrogen gas.

$$Mg\,(s) + 2HCl\,(aq) \longrightarrow MgCl_2\,(aq) + H_2\,(g)$$

★ Think back on the experiment carried out to prepare carbon dioxide gas in the laboratory. Carbon dioxide was prepared by adding diluted hydrochloric acid to calcium carbonate.

7.2 Bases

Pay your attention to the substances classified under bases in the table prepared during assignment 7A. Milk of magnesia, toothpaste, soap and lime are examples for bases.

Many bases are encountered as solids. Ammonia is a gas showing basic properties. Aqueous solutions prepared by dissolving bases in water are used in laboratory experiments. Sodium hydroxide (NaOH), potassium hydroxide (KOH) and ammonia solution (NH_4OH) can be given as the bases frequently used in the laboratory.

Properties of acid and bases

- Acids
  - Taste sour
  - Turn pH paper red
  - pH of 0-6
  - Acids feel like water
  - Can be caustic
  - Foods like fruits, vinegar, soda, yogurt
  - Conduct electricity
  - React with metals
- Bases
  - Tastes bitter
  - Turn pH paper blue
  - pH of 8-14
  - Feel slippery
  - Can be caustic
  - Ammonia, soap, pickles
  - Conduct electricity
  - Do not react with metals

•Acids + bases = water +salt