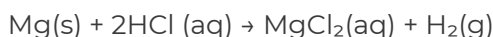


Making Salts

REACTIONS OF ACIDS WITH METALS

metal + acid → metal salt + hydrogen



This can be represented as two half equations:

HT

$\text{Mg(s)} \rightarrow \text{Mg}^{2+}\text{(aq)} + 2\text{e}^-$ - this is oxidation as Mg has lost electrons
 $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ - this is reduction as the H^+ has gained electron

This is a **redox reaction** as **both oxidation and reduction** has occurred.

REACTIONS OF ACIDS WITH METAL COMPOUNDS

Acids are neutralised by alkalis (eg soluble metal hydroxides) and bases (eg insoluble metal hydroxides and metal oxides) and by metal carbonates.

metal hydroxide + acid → metal salt + water

metal oxide + acid → metal salt + water

metal carbonate + acid → metal salt + water + carbon dioxide

NAMING SALTS

The particular salt produced in any reaction between an acid and a base or alkali depends on:

- the **metal** in the base or alkali - this forms the **first part** of the name.
- the acid used - this forms the **second part** of the name.
 - **hydrochloric acid** (HCl) produces **chlorides**
 - **nitric acid** (HNO_3) produces **nitrates**
 - **sulfuric acid** (H_2SO_4) produces **sulfates**

SOLUBLE SALTS - REQUIRED PRACTICAL 1

Soluble salts can be made from acids by reacting them with solid insoluble substances, such as metals, metal oxides, hydroxides or carbonates. The solid is added to the acid until no more reacts and the excess solid is filtered off to produce a solution of the salt.

- | | |
|---|---|
| 1. Measure 50 cm ³ acid in beaker | |
| 2. Warm acid | Why step 2? - speeds up reaction |
| 3. Add spatulas of solid base (or metal) | |
| 4. Stir | Why step 5? - all the acid has been neutralised |
| 5. Keep adding solid until no more reacts and base is in excess - you can see at bottom of beaker | Why step 6? - excess base/metal removed |
| 6. Filter with filter funnel and filter paper | |
| 7. Pour solution into evaporating basin | |
| 8. Heat using a water bath to evaporate some of the water. | Why step 8? - concentrates the solution |
| 9. Leave to crystallise | |
| 10. Dry crystals on filter paper | |