

5.2 Oxidation of Zinc by Hydrochloric acid

Subject: Oxidation/reduction, gas forming reaction, acid properties, net ionic equations, exothermic reactions

Description: Observation of the oxidation of zinc metal by hydrochloric acid to form hydrogen gas and zinc chloride.

Materials:

Mossy zinc (1 piece)
1 M Hydrochloric acid, HCl[‡]
Petri dish
Tweezers
Flask (optional)
Balloons (optional)

[‡]HCl is located in the cabinet under the hood.

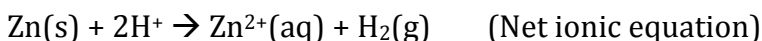
Procedure:

Note: Use the demo camera for displaying the reaction in ISB135.

1. Add a small amount of HCl to the Petri dish or flask.
 2. Add a small piece of zinc metal to the HCl and observe the reaction. Hydrogen gas will be produced.
- Optional: Put a balloon over the flask opening to collect the gas. Ignite the balloon.

Discussion:

Zinc is oxidized by hydrochloric acid to form zinc chloride. In the process, hydrogen gas is produced. The reaction is given below.



Safety: HCl and zinc chloride are corrosive and can cause skin irritations or burns. Wear appropriate protective equipment, including gloves and safety glasses.

Disposal: Solutions of zinc chloride should be disposed in appropriate hazardous waste container.

References:

For a more thorough description and variations see:

1. B.Z. Shakhshiri; *Chemical Demonstrations: A Handbook for Teachers of Chemistry*; Wisconsin; 1985; Volume 1; p. 25-26

