The reaction of metals with acids

In this experiment you will be looking at the reactions between various metals and some acids.

Read the instructions before you start the experiment to make sure you understand the procedure.

Instructions

1. Cover the worksheet with a clear plastic sheet.
2. Place a few copper turnings in each box in the copper row.
3. Place one small piece of magnesium ribbon in each box in the magnesium row.
4. Place a few zinc granules in each box in the zinc row.
5. Place some iron filings in each box in the iron row.
6. Finally, place a few tin granules in each box in the tin row.
When all the pieces of metal are in place:
7. Add two drops of dilute hydrochloric acid to each metal in the hydrochloric acid column.
8. Add two drops of dilute nitric acid to each metal in the nitric acid column.
9. Add two drops of dilute sulphuric acid to each metal in the sulphuric acid column.
10. Finally, put one piece of copper turning in the box at the bottom and add two drops of concentrated nitric acid.

Comments

As you do these experiments observe carefully and record your findings.

Question

1. What do you observe? Give explanations for your observations.

	Hydrochloric acid	**Nitric acid**	**Sulphuric acid**
Copper			
Magnesium			
Zinc			
Iron			
Tin			

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	Concentrated nitric acid
Copper	

Health & Safety

Students must wear suitable eye protection (Splash resistant goggles to BS EN166 3).

Hydrochloric acid, 1 mol dm^{-3} HCl (aq), is low hazard.

Nitric acid, dilute 1 mol dm^{-3} is CORROSIVE, and concentrated 5 mol dm^{-3} HNO_3 (aq), is OXIDISING and CORROSIVE and gives off toxic fumes.

Sulfuric acid, 1 mol dm^{-3} H_2SO_4 (aq), is CORROSIVE.

Nitrogen oxides are formed, gases are CORROSIVE and very TOXIC (Fatal if inhaled). Do not increase quantities mentioned and work in a well-ventilated laboratory.

Magnesium ribbon is FLAMMABLE.

Zinc powder, Zn (s) is FLAMMABLE and hazardous to the aquatic environment.

Credits

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Health & safety checked May 2018

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