

Determination of relative reactivities of metals through displacement reactions

Introduction

Some metals are more reactive than others. In this experiment, a piece of metal is added to a solution of a compound of another metal. A more reactive metal displaces a less reactive metal from its compound. By carrying out this experiment, you will be investigating the competition reactions of metals and produce a reactivity series of the metals.

Apparatus

dimple tray

100 cm³ beaker

4 × dropping pipettes

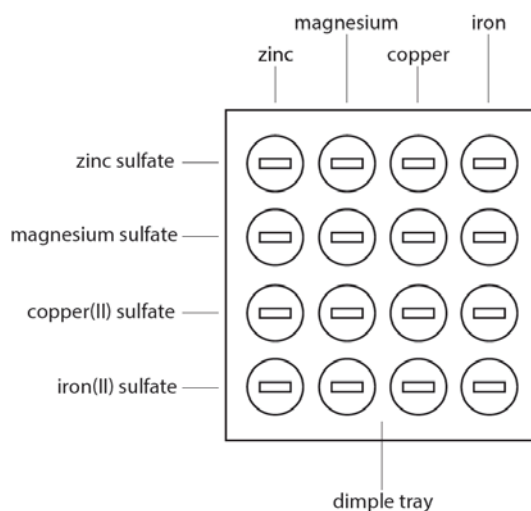
5 cm³ of each of the following at 0.1 mol/dm³

- zinc sulfate
- magnesium sulfate
- copper(II) sulfate
- iron(II) sulfate

Approximately 1 cm length/square sample of the following metals.

- zinc
- magnesium
- copper
- iron

Diagram of Apparatus



Method

1. Using a dropping pipette, put a little zinc sulfate in four of the depressions of the dropping tile. Do this for each solution in turn. Do not overfill dimples.
2. Put a piece of metal in each of the solutions, using the apparatus diagram as a guide.
3. Observe and record the changes in the solutions or metal samples.

Analysis

1. Use your results to construct a reactivity series for the metals used. Write equations for any reactions that occurred.