

Redox reactions

In this experiment you will be observing and interpreting two redox reactions. Students must wear eye protection.

A. Investigating the reaction between copper(II) ions and halide ions.

Instructions

1. Cover the worksheet with a clear plastic sheet.
2. Put one drop of copper(II) sulphate solution in each of the boxes below.
3. Add one drop of sodium chloride solution to the first box; one drop of potassium bromide solution to the second box; one drop of potassium iodide solution to the third box. Observe.
4. Add one drop of starch solution to each of the reaction mixtures. Observe.

	Sodium chloride solution	Potassium bromide solution	Potassium iodide solution
Copper(II) sulphate solution			

Question

1. What explanation can you give for your observations?

B. Investigating the reaction between silver(I) ions and iron(II) ions.

Instructions

1. Cover the worksheet with a clear plastic sheet.
2. Put one drop of silver nitrate solution in the box below.
3. Add one drop of iron(II) solution. Observe closely. What happens?
4. After one minute add one drop of thiocyanate solution.

	1. Iron(II) solution
Silver nitrate solution	
	2. Thiocyanate solution

5. To help you interpret your observations, put one drop of potassium thiocyanate solution in each of the boxes below. Add one drop of each of the reagents indicated and observe.

	Silver nitrate solution	Iron(II) solution	Iron(III) solution
Potassium thiocyanate solution			

Question

1. What explanations can you give for your observations?

Health & Safety

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

Potassium bromide, 0.2 mol dm^{-3} , KBr (aq), Iron(II) sulphate, 0.2 mol dm^{-3} , $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ (aq), Iron(III) nitrate, 0.2 mol dm^{-3} , $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ (aq), Potassium thiocyanate, 0.1 mol dm^{-3} , KBr (aq) and Potassium iodide, 0.2 mol dm^{-3} , KI(aq) are low hazard.

Silver nitrate, 0.1 mol dm^{-3} , AgNO_3 (aq) is an eye irritant. Keep separate from organic waste containers.

Copper(II) sulphate solution, 0.2 mol dm^{-3} , CuSO_4 (aq) causes eye damage and is hazardous to the aquatic environment.

Credits

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Health & safety checked May 2018

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