Dissolved substances in tap water and seawater

Introduction

In this experiment you will evaporate tap water, distilled water and seawater to reveal solid residues. Then you will observe as your teacher boils the three types of water to release their dissolved gases, which will be collected in a test tube and tested using a glowing splint.

Equipment

Apparatus

- Eye protection
- Glass watch glasses (approximately 7.5 cm diameter), x3
- Beaker (100 cm^3)
- Bunsen burner
- Tripod
- Gauze
- Heat resistant mat
- Tongs

Chemicals

- Seawater (5 cm^3)
- Distilled (or deionised) water (5 cm^3)

Health and safety

Do not handle hot equipment.

Wear eye protection throughout.

Never eat or drink anything in the laboratory.

Method

1. Set up a Bunsen burner on a heat resistant mat. Over it, place a tripod and gauze.
2. Half fill a beaker with water and place it on the gauze.
3. Take a watch glass and place enough tap water on it to cover half its area. Place the watch glass on the beaker.
4. Heat the water in the beaker until it boils and then let it boil briskly.
5. When all the water on the watch glass has evaporated, turn off the Bunsen and use tongs to remove the watch glass. (Do not touch the watch glass it will be hot. It can safely be placed on the bench though.)
6. Examine the watch glass for traces of solid residue.
7. Repeat the steps 3 to 6 with:
    - Distilled water
    - Seawater

Questions

1. Note down your observations in the table:

Type of water	Observation
Distilled water	
Tap water	
Seawater	

2. Complete the sentences by choosing the correct words

impure pure lots of water solute dissolves no solution evaporate salty mixture

Distilled water contains _____ dissolved solids because it is _____.

Seawater tastes _____. It contains sodium chloride and some other salts. It is a _____.

When sodium chloride _____ in water, the sodium chloride or _____ particles separate and spread throughout the particles of the _____ or solvent. The white crystals can no longer be seen.

When seawater is boiled the water molecules _____, leaving the solid salts behind.

3. Tap water contains less dissolved solids than seawater. Suggest what dissolved solids are present in tap water.

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