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 the 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

- Safety glasses
- Glass watch glasses (approximately 7.5 cm diameter), x 3
- 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

2. Suggest a reason for your observations.

(a) Tap water _____

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(b) Distilled water _____

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(c) Seawater _____

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3. Describe what happens on a particle level when a substance dissolves.

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4. Explain what happens to water particles when seawater is heated.

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5. Suggest what dissolved solids are present in tap water.

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6. Suggest a reason why water companies add fluoride salts to tap water.

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